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Railway Age

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Vol. 88 March 29, 1930 No. 13

In this Issue

Southern Pacific Buys Ten New Lounge Cars ..... Page 754

A description of cars, equipped with observation and club facilities and finished in aluminum lacquer to reduce interior temperatures in hot weather, built for this road by the Pullman Car & Manufacturing Corporation.

Making Old Bridges Stronger 756

In a paper presented before the Western Society of Engineers, G. A. Haggander, bridge engineer of the C., B. & Q., discusses methods of reinforcing existing structures to extend their life and enable them to carry heavier loadings.

Reading Installs Electric Traction 761

G. I. Wright, engineer of electric traction, describes the electrification project which this company is now carrying out on 50 route miles in the vicinity of Philadelphia, Pa.

EDITORIALS

Railroad Traffic and Earnings 751
"Relieving" the Railways of Low-Rated Traffic 752
Flag Protection for Crossing Obstructions 752
Is There a Need for a Railroad Museum? 753

GENERAL ARTICLES

Southern Pacific Buys Ten New Lounge Cars 754
Making Old Bridges Stronger, by G. A. Haggander 756
Senator Given Chance for Special Argument 760
Reading Installs Electric Traction, by G. I. Wright 761
N. & W. Has Its Best Year 765
Pacific Type Locomotive Equipped with Poppet Valves 767
Freight Car Loading 768
Speed and Comfort Attract Passengers 769
Government Completes Evidence in First "Reciprocity" Case 771
Motor Carrier Bill is Passed by the House 774
New Rate Base Rule Proposed 775
Surgeon's Study of Fractures 776
Informal Settlement of Rate Controversies is Urged 777

LOOKING BACKWARD 777
COMMUNICATIONS AND BOOKS 778
ODDS AND ENDS OF RAILROADING 779
NEWS OF THE WEEK 780

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

UNION

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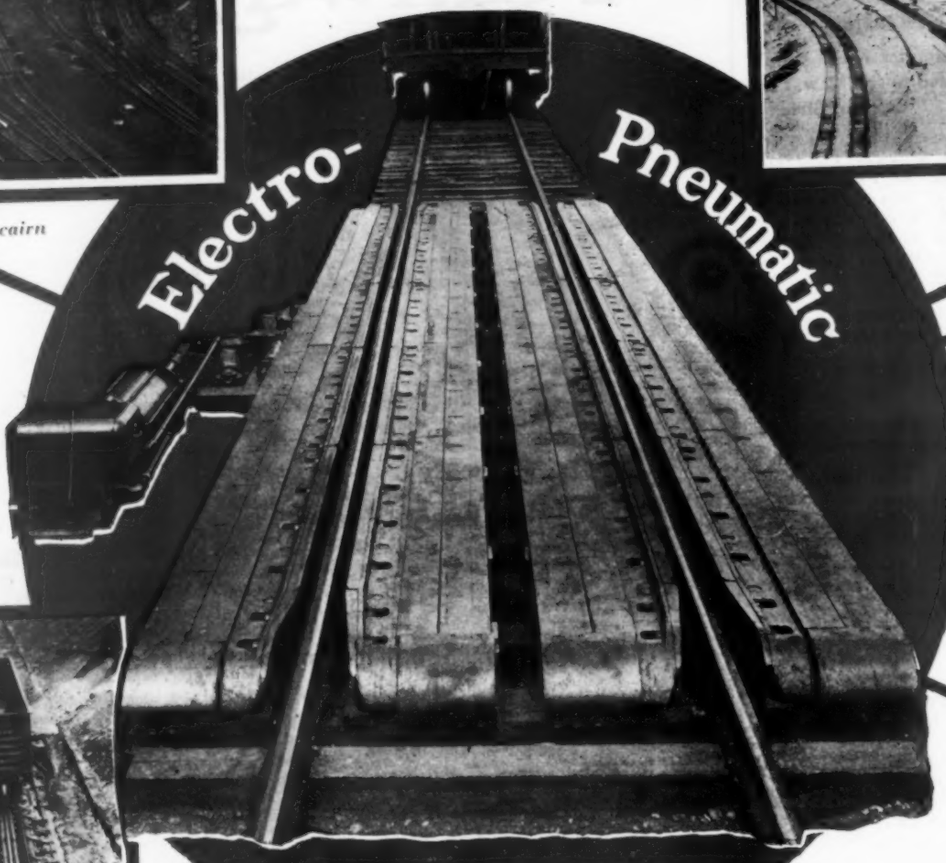
Electro-Pneumatic



Commonwealth Edison

Model 28

Gibson

Boston

Markham

Russell

Railway Age

Vol. 88, No. 13 March 29, 1930

Table of Contents Appears on Page 5 of Advertising Section

Railroad Traffic and Earnings

WHATEVER the last three-quarters of the year 1930 may have in store for the railways, it is now evident that for the first quarter of the year, which is almost ended, they will report very poor earnings. The only month of the year for which complete earnings figures are available is January, but both total earnings and net operating income are determined mainly by the volume of freight traffic handled, and from the beginning of October until the middle of March loadings of freight declined at an accelerating rate. The decline in October as compared with the corresponding month of the preceding year was less than one per cent, in November and December it was 5 per cent; in January, 6.2 per cent; in February, 6.9 per cent, and in the first two weeks of March, 7.8 per cent.

Why October Decline Was Heavy

When the declines of freight movement and of total earnings began in October, the operating expenses of the railways were relatively high, both because of the large amount of traffic they had been handling for some months, and because of the large programs of improvements and maintenance they were carrying out. In consequence in October the decline in their net operating income was relatively large as compared with the decline in their total earnings, and amounted to 8 per cent. In November their operating expenses were smaller than a year before, but, owing to the large decline in their total earnings, their net operating income declined 24 per cent. Since then both total earnings and operating expenses have been declining, but it has been impossible to reduce expenses enough to offset the reduction in earnings, and in December net operating income showed a decline of 23½ per cent and in January a decline of almost 28½ per cent.

Net Return Less Than 4 Per Cent

In the four months ending with January, 1929, the return earned by the Class I railways was at the annual rate of 5.20 per cent, while in the four months ending with January, 1930, it was at the annual rate of only 4 per cent.

As car loadings during February and March have shown a relatively larger decline than in preceding months since the collapse of the stock market, it cannot reasonably be anticipated that the total earnings and net operating income reported for these months will be relatively any better than those reported for December and January. In the first quarter of 1929 the railways earned at the annual rate of 5.37 per cent on their property investment. In the first quarter of 1930 they undoubtedly earned at a rate of less than 4 per cent.

It has not been expected that the concerted efforts being made by the national administration and business leaders to stimulate general business would be productive of tangible results before the second quarter of the year. The return earned by the railways in the first quarter of 1930 probably has been at a lower annual rate than in the first quarter of any other year since 1922. While their business has been so poor they have been going forward with an unusually large program of capital expenditures for the purpose of helping general business, and they would very heartily welcome the increase in general business predicted for the second quarter of the year. Large railway expenditures undoubtedly help general business, but railway earnings depend upon the volume of traffic furnished by general business, and unless general business does improve in the second quarter of the year the railways will have very unsatisfactory financial results to report for the entire first half of the year.

Worst Probably is Past

It seems probable, however, that the net earnings reported by the railways during the last two months of 1929 and the first quarter of 1930 will be relatively the worst reported by them during the present period of depression. In order to help maintain general business they have thus far curtailed maintenance expenditures less than in past periods of depression, and this, of course, has caused their net operating income to decline more than it would have if they had adopted a policy of drastic retrenchments. While traffic has

declined at an accelerating rate ever since last September, it seems probable that this will not continue to be true, but that, in some territories at least, the volume of traffic moving soon will begin to show an increase. Most of the Regional Shippers' Boards have predicted that the demand for freight cars will be less in the second quarter of the year than it was last year; but the Allegheny board has predicted an increase of 5 per cent over 1929 in carloadings in its territory, the principal factor in this anticipated total increase in loadings being an increase of more than 9 per cent in loadings of coal and coke.

General business conditions are still very unsatisfactory, and railroad traffic and earnings are showing the effects to a marked degree; but it does not seem unreasonable to believe that the general business situation already is as bad as it is going to be, and that it will soon begin to give evidences of improvement.

"Relieving" the Railways of Low-Rated Traffic

"THE waterways do not compete with the railroads, but aid them. By providing cheaper transportation for low-grade bulk commodities they relieve the railways of this unremunerative traffic and leave them free to transport the high-rated traffic such as perishables"—this is a canard which waterway advocates have broadcast to the point where it has received widespread acceptance. The statement is ingeniously worded and is sufficiently plausible to mislead even those who are ordinarily wary. In fact, the idea was recently advanced in all earnestness at a meeting of statisticians—the very last group in which one would expect to meet with such a curious distortion of the truth.

Canards have succeeded before now, however, in bolstering causes which had no solid merit upon which to rely. Skillfully contrived, they have a remarkable vitality and cannot be downed by one refutation, but must be challenged time and time again if they are to be effectively and permanently silenced.

Fortunately this particular mis-statement is not difficult of refutation because it contains not even a half-truth. The waterway provides cheaper rates, not cheaper transportation, and it has been shown repeatedly that total costs of transportation by improved waterways, including the taxpayers' contribution, are not cheaper but are actually considerably higher than railway transportation costs. Furthermore, in suggesting that the railroads be "relieved" of tonnage the tacit assumption is made that railway facilities at the present time are greatly overtaxed, whereas all railway men know that more tonnage and not less is what they need if they are to continue improving service and lowering costs. The third outstanding distortion is that low-rated bulk commodities such as waterways can handle are necessarily unremunerative to the railroads. As a matter of fact, where a railroad has a large tonnage of such a commodity as coal and is able to adopt mass methods of moving it, the low-rated traffic may be highly profitable. Some of the lowest operating ratios to be found among the railroads of this country are those of coal carriers.

In short, this idea has not one word of truth in it—and still it lives, and apparently thrives. Unless railroad men and others who know the facts will challenge the assertion generally wherever they may hear it, its further repetition will continue to do harm to the railroads and to the general economic welfare of the country.

President Davis of the Lackawanna in the annual report of that company has taken what appears to us to be a wise step in calling attention to the uneconomic nature of waterway competition. If the easily ascertainable facts should be placed forcibly and repeatedly before railroad employees and owners generally, the time might come when waterway advocates would find themselves restrained by prevalent opinion to the handicap of economic principles applicable to other business. Should not the railroad endeavor to see to it that, at the very least, their employees and their stockholders are fully acquainted with the basic facts?

Flag Protection for Crossing Obstructions

ONE of the precautions that is drilled into every railway employee until it becomes second nature to him is that he must provide adequate flag protection whenever he places on the track any obstruction that he cannot remove instantly if the necessity should arise. In accordance with this practice no track foreman will attempt to transport a heavy object along or across the track without first sending out flagmen; yet a non-railway employee is free to move such an object across the tracks at will at any highway crossing without protecting railway traffic.

The hazard of such a practice was illustrated by an accident that occurred on the Chicago & North Western near Chicago a few days ago. Here a contractor was hauling quantities of heavy pipe across the track at a private crossing. In this instance the contractor had arranged with the railway to provide flag protection for the movement across the track during the daytime. In an effort to hasten the work, however, the contractor continued the hauling of the pipe after the flag protec-

tion was withdrawn at the end of the working day, with the result that a section of pipe rolled off the skids and lodged on the track about 9 o'clock in the evening.

In the absence of flag protection and even of the usual flagging equipment, the workmen endeavored without success to warn a fast passenger train, which struck the pipe and was derailed, fouling the opposite main track on which another train was approaching. The latter train was also derailed, killing the engineer and injuring some twenty other persons.

Accidents such as these are rare, but the fact that they can and do happen on railways equipped with modern safety devices indicates the necessity for developing some means of affording more adequate protection to the traveling public and to railway employees against hazards beyond their present control, by making it obligatory on any person or company that transports across the tracks any material that creates a hazard to arrange first with the railway to provide the same protection that the road would provide if it were itself so blocking a track. No less protection will meet the needs.

Is There a Need for a Railroad Museum?

SEVERAL weeks ago there was published in the *Railway Age* (February 8, page 392) a letter from a reader strongly advocating two projects designed to increase public appreciation of railroads and to foster cordial public relations.

The first of these proposals—that the railways organize an exhibition similar to the Baltimore & Ohio's memorable "Fair of the Iron Horse", but on even broader lines and more inclusive in its scope, at the World's Fair which is to be held at Chicago in 1933—appears eminently worthy of consideration. The second suggestion contained in Mr. Keeney's letter—that a permanent national railway exhibition and museum be created—is, basically, of even greater significance.

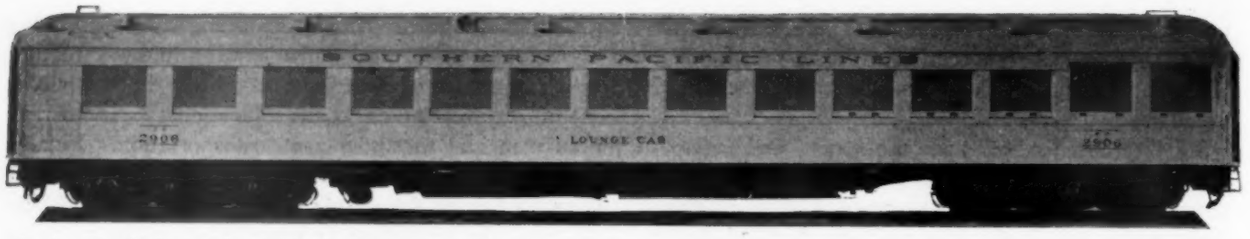
Such a museum, which might properly be organized along lines similar to those technical museums which Mr. Keeney mentions at Leipzig, Nuremberg and Vienna, and to the London & North Eastern's splendid museum at York, England, could and should fulfill three functions, each separate, if not wholly distinct, from the others. Primarily, it should be historical, with maps, photographs and models designed to show the spread of the American railway net, the economic importance of the railway and the improvement in safety, comfort and dependability of rail travel, in so far as those improvements are of interest to the traveler and shipper.

In the second place, it should be technical, with more detailed models exhibiting advances along engineering, mechanical and operating lines—a feature which might be of little interest to the general public, but of very real practical and educational value to railroad men and to students of transportation. Finally, although it is not suggested that any sort of travel or shipping bureau be maintained in connection with the museum, the exhibition as proposed could be made of inestimable value to the railroads as a whole by the opportunity which would be presented to show the public in graphic fashion the advantages of rail transportation.

The benefit thus accruing would, of course, be indirect, but even an indirect step which contributes to more cordial relations between the railroads and the traveling and shipping public is decidedly worthwhile. Mr. Keeney has suggested in his letter that the creation of such a permanent railway exhibit ought to be the work of the American Railway Association. Should that association be empowered to undertake such an enterprise, it should have little difficulty in collecting, from the various railroads of the country, enough material for a really excellent museum. Great Britain, Austria and Germany have given ample proof abroad of the possibility of developing such an exhibition, while in this country much the same thing has been done by the Baltimore & Ohio on a large scale, though only temporarily, at Halethorpe, Md.; somewhat more modestly by the New York Central in its Grand Central Terminal exhibition; by the Locomotive Historical Society in its collection of old locomotive plans and pictures at the Harvard Graduate School of Business Administration, and by other railroads and organizations in various parts of the country.

Actually, assuming that the cost could be charged to advertising, there is only one major problem in connection with the project—the question of where a museum might be located, in a country the size of the United States, to secure a maximum of public interest and of railroad advantage. The national capital or some educational center, such as Boston, or possibly some mid-continent city, such as Chicago or St. Louis, might be suggested; or there is the possibility of establishing several such museums, each stressing one particular phase of progress, or development in a particular section of the country. Once this is settled satisfactorily, the general idea, or a variation of it, will be both possible and practicable.

The proposal is one of manifest merit. The centennial of the railroads is upon us and at no time has interest in railroad history been so great as it is today. This interest is growing. The question of a national transportation exhibition, or a permanent railroad museum, is timely and deserves widespread discussion by railroad men. Ideas on the subject need to be crystallized into a definite plan so that action may be taken while interest in the subject is still keen.



Southern Pacific Lounge Cars Finished with Aluminum Lacquer

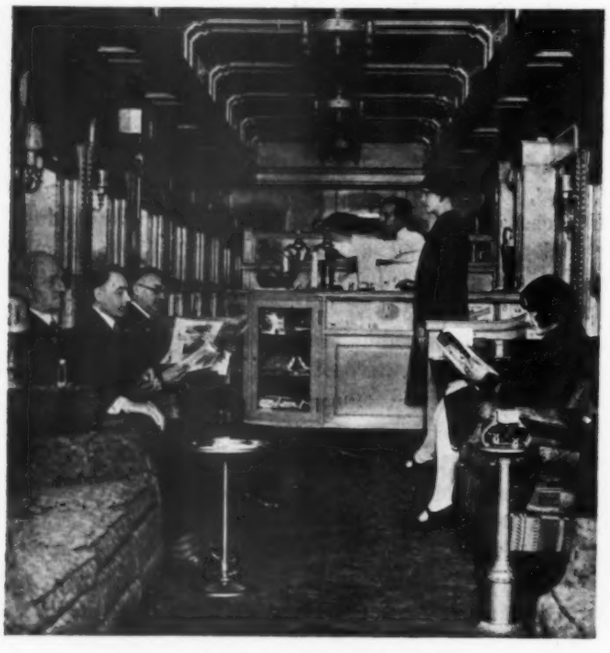
Southern Pacific Buys Ten New Lounge Cars

Exteriors finished in aluminum lacquer to reduce interior temperatures in hot weather—May be used as observation or club cars

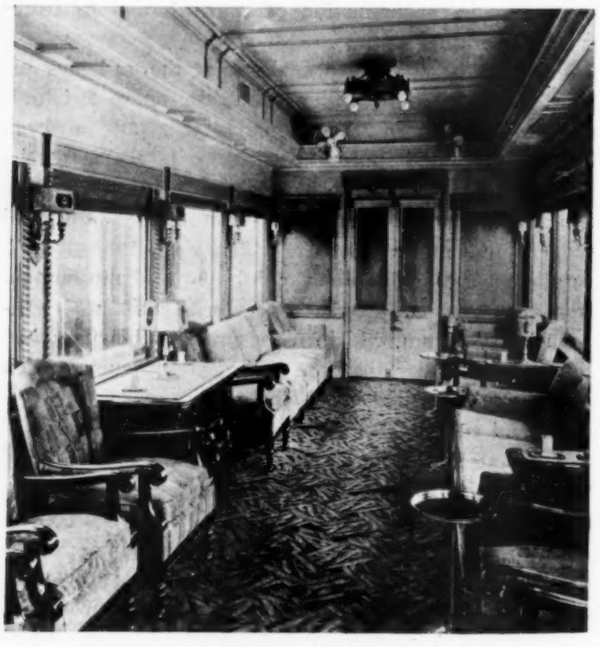
TEN new lounge cars, embodying the latest ideas in practical and artistic design of passenger equipment, and at the same time providing comfortable, luxurious furnishings and conveniences comparable with those of the modern hotel, have just recently been placed in service on two of the Southern Pacific's popular trains, the Argonaut, operating between Los Angeles, Cal., and New Orleans, La., and the Shasta, between Oakland, Cal., and Portland, Ore.

An exterior covering of aluminum lacquer is an innovation in the exterior finish of these cars. Inasmuch as aluminum possesses heat-reflecting qualities, it is expected that the aluminum-painted lounge cars will not absorb as much of the sun's heat and will cool off faster than the dark colored cars, adding greatly to the comfort of travelers during the summer months. The new lounge car has two coats of aluminum paint over a primer on the roof. A lacquer system was also used in finishing the sides and ends, the top two coats being aluminum lacquer.

A large observation room, 26½ ft. long, with seating capacity for 20, occupies one end of the 80-ft. car. In the other portion of the car there is a general lounge with seating arrangements for 18; a buffet equipped with soda fountain; separate wash room and lounge room for women, with a shower bath; and a barber



The Buffet in the Observation Room



The Observation Room

Arrangement of the Car

shop with a men's shower adjoining. A porter and barber are constant attendants in the car.

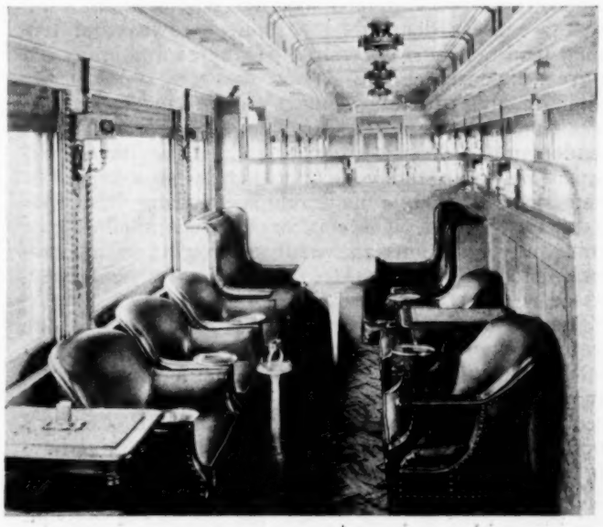
A feature of the car is that while the various facilities are compactly grouped, the low partitions separating the general lounge, observation and buffet, give the car a spacious appearance. Large, comfortable chairs and sofas in the observation room are upholstered in tapestry, and the cushions are filled with goose down, a material used only in the manufacture of exclusive grades of furnishings. In the general lounge and smoking room, the seats are upholstered in leather. Colors of tapestries, carpets and trimmings are kept in harmony with the interior treatment. Three of the cars have an interior finish of blue, three of green and four of tan. The exposed woodwork of the furniture is of walnut.

The observation room is equipped with 13 chairs and 2 sofas. Small tables are placed at either end of one sofa, and on the opposite side of the car there is a large table between two of the chairs. Parchment-covered wall and table lights lend an artistic effect. In addition, there is the customary writing desk. Radio outlet receptacles have been provided, both in the observation room and in the general lounge. There is also a telephone jack for connection and use at terminals.

In the general lounge, two lower Pullman sections are provided at each end, which can be used for playing cards or for any other purpose. In addition, there are ten large chairs and three small tables. Men and women may smoke in this portion of the car. The smoking room is separated from the remainder of the general room only by a partition about 4 ft. high, so that couples traveling together need not be entirely separated.

One of the principal new features of this car is the treatment of the buffet, which occupies a position midway between the general lounge and observation room. Being open and quite similar to the modern store fountains, it invites the attention of the traveler. It has been noted that more use is being made of the buffet arranged in this manner than in cars in which it is concealed. Being equipped with a soda fountain, and handling ice cream, the lounge-buffet car has an attraction over the buffets in other cars. Notwithstanding the fact that these cars have been in service only during a time of the year when travel is not heavy and demands on the soda fountain are correspondingly light, the fountain has been earning a sufficient amount to pay for a large portion of the interest on the investment in the entire car.

Maximum window opening is another feature of the car. All the main windows are 4 ft. 5 in. wide by 3 ft. 3½ in. high. The two windows on each side



The General Lounge Room Looking Over the Buffet and Fountain Toward the Observation Room

of the car at the extreme rear and the two windows on the end wall of the car, have been extended 6 in. higher than the balance of the windows, thus giving the standing passenger a better range of vision.

The car contains many additional facilities and practically all of the customary features of a full observation car, with the exception of the observation rear platform. The omission of the platform makes it possible to operate the car in other parts of the train than the rear end, and it can serve as a club car when the train is already provided with an observation car, as on the Shasta and Argonaut. The car is provided with a diaphragm, making it possible to attach private or business cars when operated on the rear of the train.

Ten cars of this type, costing $600,000, have been purchased by the Southern Pacific from the Pullman Car & Manufacturing Corp.

THE ANNOUNCEMENT "NEXT TRAIN IN 40 SECONDS," says the Railway Gazette, (London) is a sign of the times. It was recently posted at a station of the Underground Railway in London where formerly there had been a sign reading "next train in one minute." Trains sixty seconds apart are too slow for London.

Making Old Bridges Stronger

*Practical methods of reinforcing existing structures to extend their life and enable them to carry heavier loadings**

By G. A. Haggander

Bridge Engineer, Chicago, Burlington & Quincy

THE necessity for effecting operating economies and for improving service is gradually but constantly forcing the use of heavier motive power on the railways. The need for economy necessitates the handling of a maximum tonnage with one engine and crew, while the demand for service requires motive power which can handle trains at high speed, with sufficient reserve to overcome adverse conditions. So great are these demands that both roadway and terminal facilities must constantly be revised and improved at great expense.

The moving of heavy tonnage trains requires locomotives of large tractive power with heavy driver loads. Tenders must also be large, to reduce the number of stops for water and coal and thereby secure greater average speed. While the development along these lines has been gradual, it seems to have no well-defined limit, and predictions as to future weights of locomotives made a few years ago are already being surpassed.

The largest freight locomotive on the Chicago, Burlington & Quincy in 1905, with its tender, weighed 352,800 lb., had a tractive effort of 40,400 lb. and a maximum axle load of 48,500 lb. About that time it was freely predicted that bridges designed for Cooper's E-50 loading, which consists of a 2-8-0 locomotive having 50,000 lb. axle loads, followed by a train-load of 5,000 lb. per ft. of track, would carry any locomotives that would ever be built. Since then, railways have increased their design loadings to E-60, later to E-65 and some to E-70, while engines are being operated today that produce stresses in bridges greater than result from the E-70 loading.

The heaviest simple engine now in service on the C. B. & Q. was built in 1927. Its total weight is 897,910 lb. or more than 2½ times that of the 1905 engine. It has a tractive power of 90,000 lb. as compared with 40,400 lb. for the 1905 engine, and its greatest axle load is 72,800 lb. The tender is extremely large, carrying 24 tons of coal and 21,500 gal. of water, as compared with 14 tons of coal and 8,000 gal. of water for the 1905 tender. The tractive power of all locomotives on this road has increased from an average of 34,500 lb. in 1920 to 42,300 lb. in 1929, or 17 per cent in 10 years. Necessarily this increased weight has necessitated heavier roadbed construction and the renewal or reinforcement of many bridges.

Fortunately, while the design load of 25 or 30 years ago was only Cooper's E-50, conservative railways used low unit stresses, in order to allow for deterioration due to corrosion and for future increases in the weight of motive power. As a result, bridges built during this period are generally heavy enough to carry present-day loadings. During the decade from 1890, however, a much lighter design load was used, in which heavy axle concentrations were not considered.

Rating Old Bridges

All bridges about which there is any question as to carrying capacity must be rated. The general practice is to follow the rules of the American Railway Engineering Association. In order to do this, however, the physical condition of the structure must be known, as well as the amount of deterioration or loss of metal, both of which require a close inspection of the bridge. It is also necessary to determine whether the metal in the structure is wrought iron or Bessemer or open-hearth steel. Usually this can be done by examining the original drawings, specifications or test records, although in some cases, samples of the metal must be secured from the structure.

While the basic stress for steel allowed in the A. R. E. A. rules is 26,000 lb. per. sq. in., this is based on the assumption that the structure is in first class condition, so that allowance must be made for corrosion, mechanical wear, damage by blows, etc. Not only must the main members be checked, but the details must be thoroughly investigated. Many of the old designs do not have enough rivets for the proper transfer of stresses. Also, details at the ends of stringers and floorbeams are often weak, resulting in cracked angles and plates. Girder webs often were not spliced to carry any of the flange stresses.

After the investigation of a structure is completed, a decision must be made between entire replacement or reinforcing of the structure, if it is found to be too light. If it is necessary that bridges must be strengthened quickly and it is desired to spread the cost of replacement over a period of years, resort may be had to slow orders and falsework. Slow orders are objectionable from several standpoints, however. From the operating standpoint they increase the time required for running trains between certain points. If, as is usual, a bridge is located at the foot of a grade, the train loses its momentum at a critical point. Furthermore, from the standpoint of the bridge engineer, a slow order is objectionable, unless it can be enforced by some definite means; otherwise some trains may move over a structure at an excessive speed. If the bridge is near a point where all trains stop, or where there is some other reason to reduce speed, a slow order may not be objectionable, but out on the line, where there are no other reasons for one, it should be removed in a reasonable time by replacement or reinforcement of the structure.

Falsework is usually difficult to maintain under long steel spans for the reason that these spans are usually constructed to give a clear opening. Falsework is frequently subject to damage from water, ice and drift. In many locations, however, it can be maintained indefinitely, especially under approach spans. It should

* From a paper presented before the Western Society of Engineers, Chicago, on March 10.

be placed in streams only as a temporary expedient and this is sometimes done to get heavy power into use quickly, using the falsework later to support traffic while the span is being replaced.

Sometimes span lengths can be shortened by the use of timber piers, so placed as to allow moderate clear

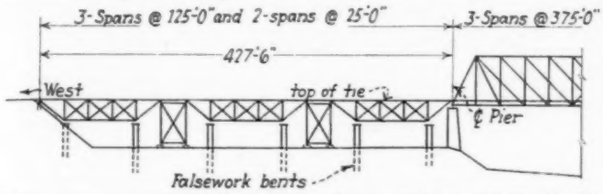


Fig. 1—Approach Spans Partly Supported on False Work

openings. A case where they were used under steel spans is illustrated in Fig. 1, which shows the C. B. & Q. bridge over the Missouri River at Rulo, Nebr. No water flows under the approaches, which permitted the trusses to be kept in service at a small cost by the use of creosoted pile piers and a moderate amount of reinforcing.

When reinforcing I-beam spans, additional beams, properly fastened to the existing beams, may be placed.

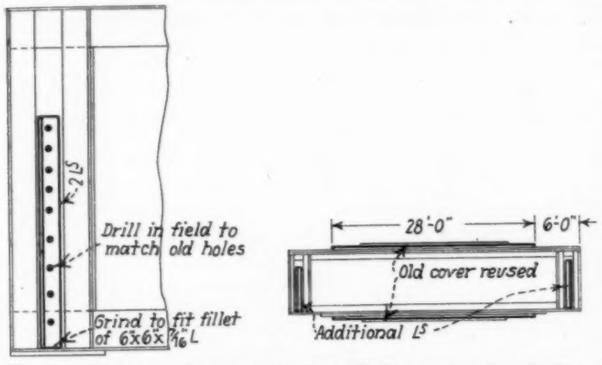


Fig. 2—Method of Strengthening Girder Spans by Adding Cover Plates and End-Post Angles

For deck-girder structures where there are several similar spans, an economical method is to double up two spans, replacing one of them with a new span. If the necessary reinforcement is not heavy, it can be added in the field without seriously disturbing traffic.

Adding Cover Plates

The end-post angles are often too small, but usually additional angles can be added easily. If the web has not been spliced for moment, this can be remedied by a short flange cover plate or by adding side plates to the angles. Additional flange section can be added by placing additional cover plates. Where good shop drawings are available, these plates can be shipped, punched and reamed, to fit the existing plates. Where the rivet spacing is not known it can be measured in the field and the plates punched accordingly, or the holes can be drilled in the field, although this is a slow and expensive process. If there has been considerable deterioration, as a result of brine action or other causes, cover plates are sometimes reduced in section and have rough outer surfaces. Under such conditions it is not advisable to place a new cover plate over one of reduced section, as there will be open spaces between them where corrosion can take place; furthermore, it is difficult to get tight rivets. The new plates should be put under the others, as shown in Fig. 2, or all new plates installed. In adding plates for reinforcement or for replacing deteriorated plates, it is our practice first to back out the old rivets, replacing them with bolts, which are removed, the plates changed and the bolts put back, between trains, after which the rivets are driven. This avoids the necessity for falsework. When a deck girder span which is being strengthened has a rod lateral system, this is usually replaced with a system of riveted laterals.

Where the cost of removal and replacement of the deck is excessive, as in a ballasted deck bridge, flange section can be added by cutting off the stiffener angles and adding additional longitudinal angles just below the flange angles, as shown in Fig. 3. If the bridge seat is large, the effective span can be shortened somewhat by moving the castings nearer to the edge of the seat and providing new end-stiffener angles over them, as was also done in the girder illustrated in this figure.

It is not possible to use electric welding to any large extent on deck girder reinforcement although, if there is insufficient flange riveting, the flange angles can be welded to the web near the ends, to transmit the stress properly. Welding can also be employed to insure a good contact between the end-stiffener angles and the flange angles in bearing

Strengthening Floor Systems

Floor systems of through plate girder and riveted truss bridges usually can be reinforced easily. Built-up stringers can be repaired by adding cover plates, or new stringers can be placed alongside the old ones. The latter method is the one usually employed when I-beam stringers have been used. An additional stringer gives greater strength at the connection and, if placed outside

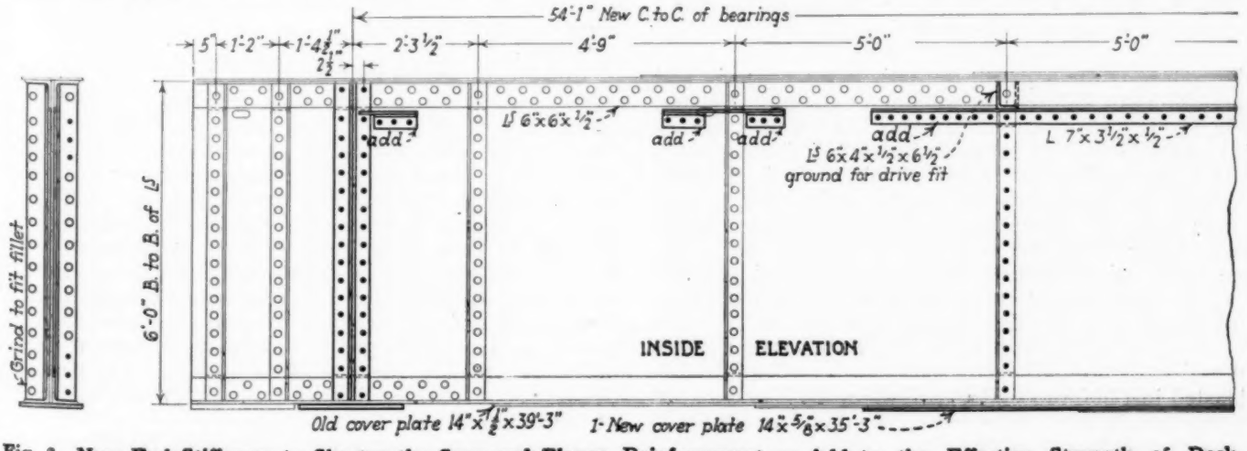


Fig. 3—New End Stiffeners to Shorten the Span and Flange Reinforcement as Add to the Effective Strength of Deck Girders

of the old ones, reduces the flange stress in the floorbeam.

If the old stringer is reinforced, the end connection must be strengthened and this can be done sometimes by the use of longer connecting angles and more rivets, or by reaming out existing holes and using larger rivets. Brackets can also be placed under the ends of stringers to give additional strength. Where cover plates are added to either floorbeams or stringers, the flange riveting may be too light. This condition can be remedied by the use of more rivets, larger rivets or by welding the edge of the flanges to the web. Flanges of floorbeams can be reinforced by the use of additional cover plates, as already described.

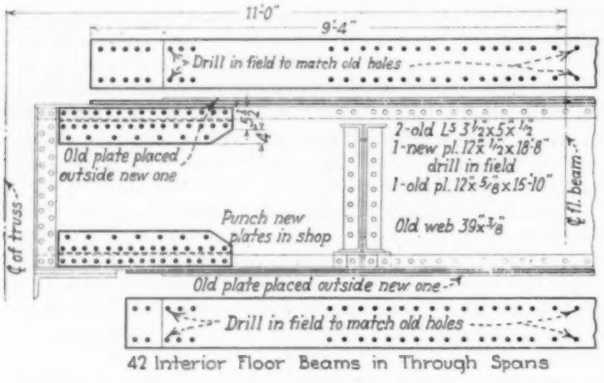

11'-0"
9'-4"
Drill in field to match old holes
Old plate placed outside new one
2-old L's 3½"x5"x½"
1-new pl. 12"x½"x18'-8"
drill in field
1-old pl. 12"x⅝"x15'-10"
Punch new plates in shop
Old web 39"x⅜"
℄ of truss
℄ of I. beam
Old plate placed outside new one
Drill in field to match old holes
42 Interior Floor Beams in Through Spans

Fig. 4—Method of Strengthening Floor Beams in Through Plate Girder Spans

The web is likely to rate low at the ends, especially in pin-connected trusses, where it has been cut away to allow room for the pin nut and eyebars. This portion of the floorbeam must be analyzed carefully for both flange and web stresses. Repairs made by riveting on additional material, as shown in Fig. 4, are likely to be cumbersome and expensive and here electric welding will give good results at a comparatively low cost. When strengthening the floor beams of the bridge over the Mississippi river at Burlington, Iowa, flange plates were riveted on, but the flange angles were welded to the web near the ends, to transmit stress properly and the web was reinforced by welding on additional plates, Fig. 9. If a floorbeam or stringer has no cover plates, it is possible to weld plates on instead of riveting them, and some use has been made of this method. In reinforcing our Burlington bridge, we planned on riveting cover plates on the stringers and the plates were drilled accordingly, with the intention of drilling the flange angles to match. However, the shifting of ties and future renewals and maintenance would be made difficult because of the rivet heads, and we are therefore welding the top cover plates to the flange angles through the rivet holes. The old steel is cleaned and sandblasted just before welding, and the work is expected to prove satisfactory. The cost of welding these holes is considerably less than that of drilling and riveting.

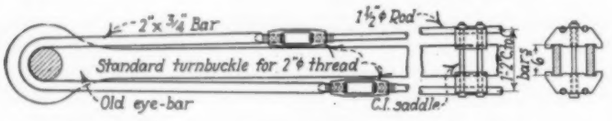


Fig. 5—Adding Adjustable Bars to Reinforce Eye-Bar Members

An ingenious method has been used recently to put initial tension in a bottom cover plate which was added by the welding method. In this procedure, one end was welded to the flange angles and the plate was then heated until it expanded, so that marks previously placed matched up. The other end was then welded and the plate allowed to cool, after which the welding was completed.

Reinforcing Pin-Connected Trusses

Truss reinforcement presents a more difficult problem than girder or floor system reinforcement. In this type of bridge, the connections often govern the strength of the structure, as in pin-connected spans all of the pin space is used at certain points. Tension members can often be reinforced by means of additional adjustable bars. These can be of several types, loop bars or single bars attached to a loop around each pin. Care must be taken, however, to form the portion of the bar having contact with the pin so that full bearing will be secured. Many engineers prefer having excess metal in this portion and boring for the pin hole.

Where a bar of uniform section is bent around a pin, the cross section will be reduced by the narrowing of the outer edge, and allowance for this must be made. Bars should be limited to a minimum section of about 1½ in. sq., even though less metal is needed, in order to reduce the vibration under load. Where pin room is limited, bars are sometimes placed over the heads of existing eyebars, but this method gives questionable results, as the outside of the eyebar is not finished to a true surface. Where additional bars would be too close to existing bars to allow adjustment, they can be kept away by castings bearing on the existing bars, as shown in Fig. 5. These adjustable bars can be made to take a part of the dead-load tension in the reinforced members.

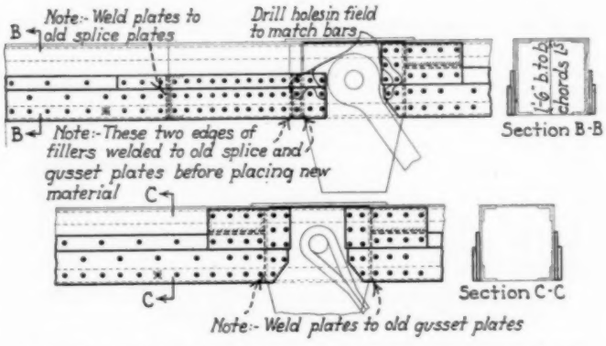

Note:- Weld plates to old splice plates
Drill holes in field to match bars
B
B
Note:- These two edges of fillers welded to old splice and gusset plates before placing new material
C
C
Section B-B
Section C-C
Note:- Weld plates to old gusset plates

Fig. 6—Reinforcing an Unbalanced Compression Chord

Compression Members

The reinforcing of compression members is an interesting study. Many of the chord members in the older bridges were not balanced in section, and act as eccentrically loaded columns. This eccentricity reduces the allowable unit stress very rapidly, but the condition can be remedied by taking off the bottom lacing bars and adding plates of the proper size, then replacing the lacing. A small area of metal placed in this way will often increase the rating of the member considerably. This method of reinforcing, where larger areas are required, is a separate problem on every structure, depending on the cross section of the member, details near the pins, etc. Figure 6 is an example of this method of reinforcing.

Oftentimes additional metal is added in the cover plate, usually between the existing lines of rivets. This

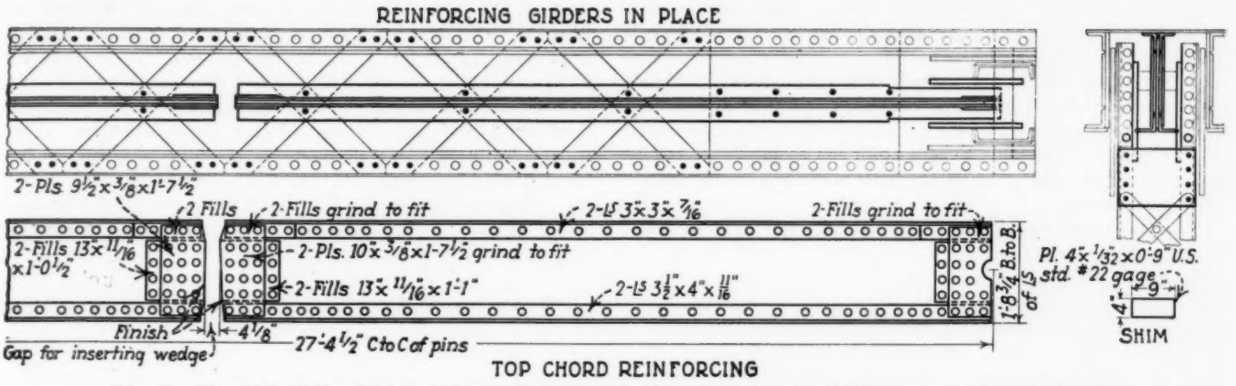


Fig. 7—Method of Reinforcing Heavy Compression Members by the Addition of a Center Girder

must be balanced by placing additional material on the lower flanges in the manner mentioned. Side plates can be added to the existing plates between the upper and lower angles. Sometimes the cover plate, as originally constructed, is so wide and thin that all of the metal in the section cannot be considered as resisting stress, in which case the stiffness given by the added cover plate makes all of the area available for this purpose.

One of the difficulties encountered in reinforcing compression members is that of devising means to get the additional material to carry dead load. If this cannot be done, full use cannot be made of the new material. For instance, if the dead-load stress in the old material is 10,000 lb. per sq. in., and the allowable maximum is 26,000 lb., the old material will be carrying 16,000 lb., live-load stress. This is the maximum stress to which the new material can be worked, since any higher stress would cause overstress in the old metal.

Several devices can be used to overcome this situation. The most common method for heavy reinforcing members is to calculate the shortening necessary to produce the desired stress under dead load, and then drill the holes in the old and new members so that the new members can be shortened by drifting before rivets are driven.

The method used on the upper chords and end posts of the Burlington bridge is entirely different and can be used only for the larger members. The cover plates were thin for their unsupported width and we desired to use a method which brought the old metal into full use. The plan adopted is shown in Figs. 7 and 8. Two center webs or girders were placed against the pins and compression introduced by means of a wedge drawn up between them.

The flanges of the girders are riveted to the top cover plate and to the lower lacing bars, thus making the new center webs an integral part of the chords, carrying the same load per square inch as the old metal. The wedges

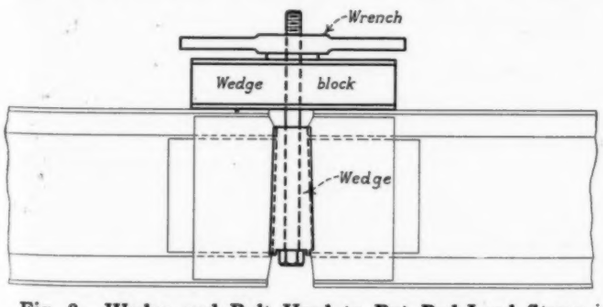


Fig. 8—Wedge and Bolt Used to Put Bed-Load Stress in Compression Reinforcing

were pulled up tight to give a full bearing of the girders on the pins. The wedges were then slacked off and pulled up to a snug fit, after which all of the wedges in one chord were drawn up simultaneously a predetermined amount to give proper dead-load stress in the new material. The bolts holding the wedges are left in place permanently.

Adding a Center Truss

The reinforcing of deck trusses is frequently accomplished by the addition of a center truss. In a single track structure, this is comparatively simple, as ample

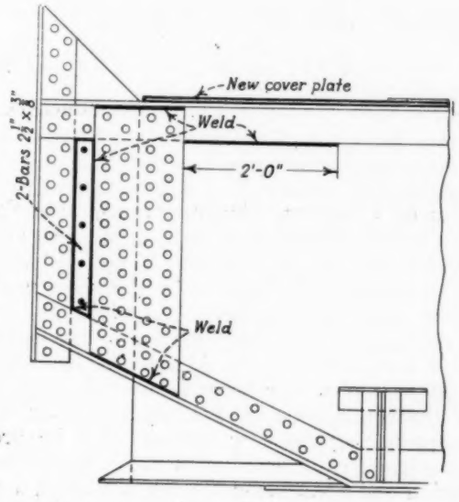


Fig. 9—End Reinforcing for a Floor Beam in a Pin-Connected Truss, by Welding

bracing can be supplied to make the three trusses deflect uniformly. The center truss should not be too stiff but should have the same deflection under load as the old trusses. Otherwise excessively heavy cross bracing will be required and excessive stresses will be introduced into the center truss before the outer trusses have deflected enough to stress the members up to their safe carrying capacity.

The addition of a center truss in a double-track deck truss span which originally has only two trusses, creates difficult problems. The tracks are likely to be loaded separately or simultaneously, and it is not economical to introduce enough bracing between the trusses to make them act together. The floor beams will be continuous over the new truss. If the center truss is too stiff, the outer truss will have greater deflection, and the outer

rail will be low under load. When both tracks are loaded, however, the center truss must be heavy enough to carry its share of the load from both tracks. Thus the stresses, deflections and distribution of stresses through the floorbeams for various loading conditions must be determined and a design chosen which will stress the various members as nearly equal as possible, without introducing objectionable deflections and poor riding track.

Mention has been made of electric welding in reinforcing old structures. This method is still in its infancy, but I think it has great possibilities. For the present it should be confined to details and points where failure of the weld will not cause complete failure of the structure. I would not consider direct tension welds at present, but only shear welds. This class of welding must be done under field conditions, which are different from those in the shop, owing to wind, rain, unfavorable temperatures, vibration of the structure and the necessity for the operator to work in cramped positions or from scaffolds.

I believe that, by confining our present work to the kind mentioned, the use of welding will be extended as further experience under actual use is obtained and a greater knowledge of this new art and its limitations is gained. We should feel our way step by step and not give the new method a serious setback by risking failures which may result from the hasty use of untried details in vital places.

Senator Given Chance For Special Argument

WASHINGTON, D. C.

THE Interstate Commerce Commission has finally found one way to deal with the kind of argumentative letters it frequently receives from members of Congress, who, apparently assuming that they are individually clothed with the authority over the commission that belongs to the House and Senate in Congress assembled backed up by the signature of the President, sometimes undertake to advise the commission or influence its action in particular cases which are before it for decision. On March 20 the commission made public copies of a letter addressed to each member of the commission by Senator McKellar, of Tennessee, protesting violently against what he professed to fear might be the decision of the commission in Investigation and Suspension Docket No. 3250, a case involving a proposed revision of rates on sand, gravel, slag, stone and chert between, from and to points in the Mississippi Valley, which was recently argued before the commission. Senator McKellar has also been conducting a campaign by speeches in the Senate against part of the proposed revision which he says would tax the people of his state an additional million dollars on road-building materials.

The letter was made public together with a notice to all parties in the case stating that the commission had decided to accept the letter as part of the record as a written argument and that all parties who desired to file answers to it had been granted ten days from the date of service of the letter to do so. One copy of each answer filed, the notice added, should be sent to the Senator, who thus may be given an opportunity to learn that there are more sides to a rate case than are commonly brought out in Senatorial speeches.

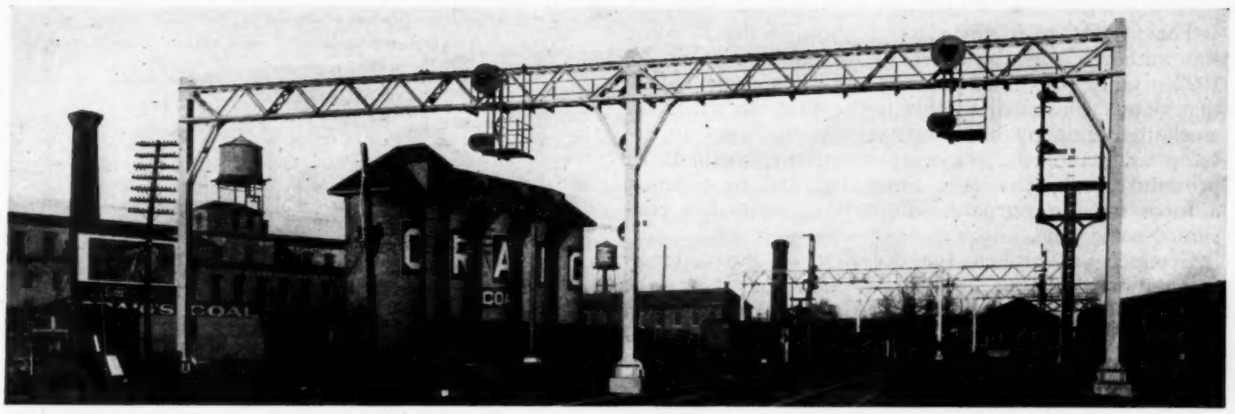
Senator McKellar's letter stated that he had been present at the argument before the commission on March 5 and had been given permission to make an oral argument on behalf of the people of Tennessee, but that, finding so many counsel for the shippers and taxpayers already in the case, he had notified the chairman that he would not do so. After the others had made their arguments in the open, however, and the case had been declared submitted, he had addressed the letter to the commission, expressing astonishment that Commissioners Woodlock, Aitchison and Meyer had asked questions during the argument which gave him the impression that the commission intended to uphold the examiner whose proposed report in the case was under consideration. The proposed report was based on a distance scale to be applied generally throughout the Southeast, but Senator McKellar said that if uniformity was sought it should be attained by lowering the higher rates rather than by raising the lower ones. Admitting that he was "an interloper in this case in one sense," he took occasion to remind the commission that "you gentlemen are our agents. We passed the law that turned over to you the powers that you have over rates," and that "when it comes to my attention that these powers are seemingly about to be abused it is not only my right, but my duty to protest."

Senator Brock, of Tennessee, had also sent a letter protesting against the proposed rates to one of President Hoover's secretaries, suggesting that he might speak to the President about it, and referring to a telegram on the same subject sent by the governor of Tennessee. Secretary Newton sent the letter to the commission and Chairman McManamy replied stating that the proceeding had been fully heard, that briefs had been filed, that all those interested had been heard in oral argument, and that the decision would be reached as soon as possible "on the record made before the commission." In a letter to Senator Brock, Chairman McManamy also stated that while the application of the scale would increase many rates in the Mississippi Valley, "its application has or would bring about many reductions from and to other points in Tennessee and elsewhere."

The commission found, however, that it had merely prolonged the discussion. On March 25 it announced that upon request of Senator McKellar it had granted him leave to file within 15 days a supplemental brief in the case and that all parties who desire to file replies are allowed another 15 days in which to do so.

* * *

The New Electric Locomotive Repair Shop at Collinwood Yard, Cleveland, Ohio, from East 140th Street Tower —Main Line at the Left



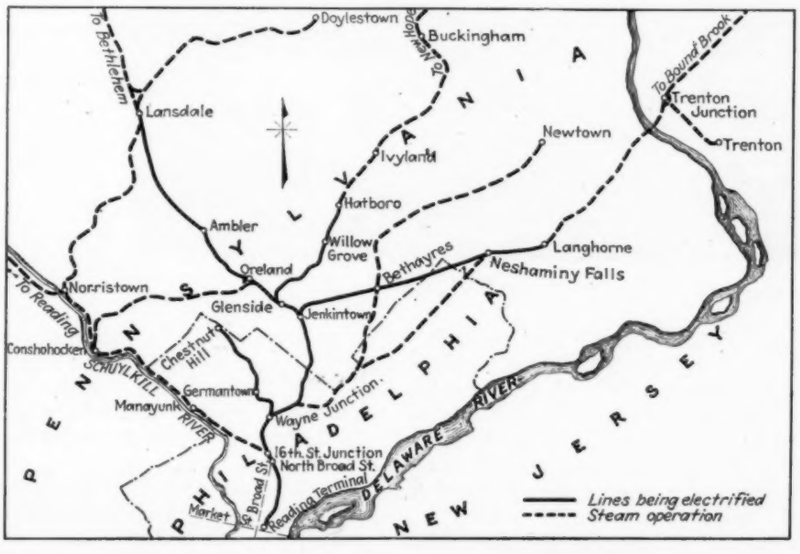
Combination Signal and Catenary Bridge Spanning Six Tracks

Reading Installs Electric Traction

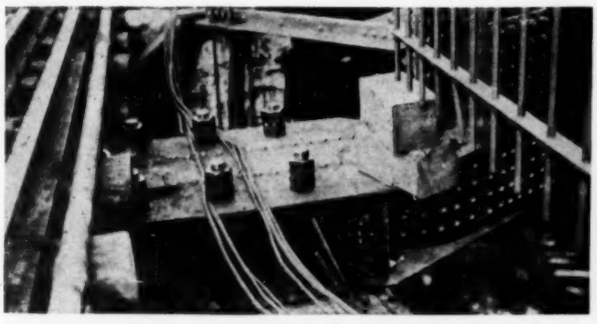
Three-wire, 33,000-volt distribution system will be used— Cars to be equipped with 11,000-volt bus

By G. I. Wright
Engineer Electric Traction, Reading Company

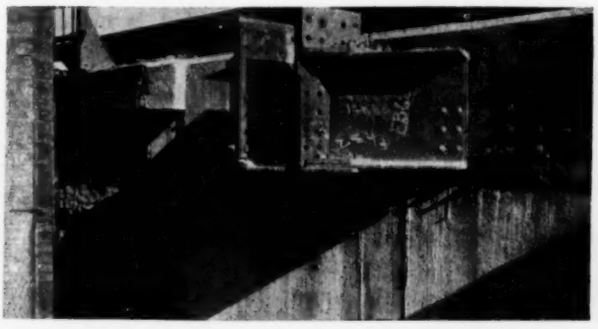
THE Reading Company's Philadelphia suburban electrification now being installed extends from the Reading terminal in Philadelphia, Pa., to Lansdale, Pa., on the Bethlehem branch, to Hatboro, Pa., on the New Hope branch, to Langhorne, Pa., on the New York branch, and to Chestnut Hill, Pa. It consists of 50 route and 110 track miles. This covers the most important of the suburban services. The suburban electrification may be extended to Norristown, Pa., Doylestown, Pa., and Trenton, N. J., and when the through freight and passenger services are electrified, it may be extended to Bound Brook, N. J., Bethlehem, Pa., and possibly Reading and Pottsville.



Territory Including Lines Now Being Electrified



Special Overhanging Foundation During Construction

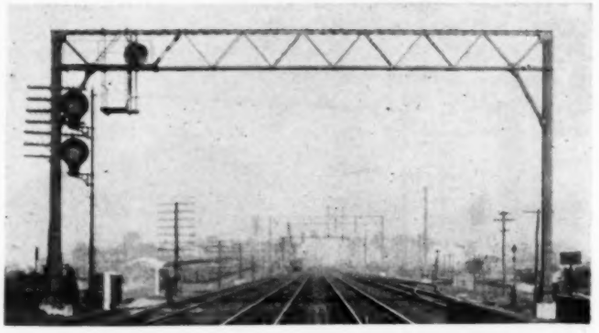


Overhanging Foundation in a Retaining Wall

The first stage in the electrification of the Reading was authorized by the board of directors, October 25, 1928. Only preliminary work had been done before that date. Inasmuch as this is the first electrification work the company has done, it was necessary to develop all standards, plans, specifications, methods of procedure, etc., from the beginning, and to organize a force for this purpose. This of necessity has consumed some time.

Ground was broken for the first of the catenary foundations on June 18 of last year, and at present a force of 35 engineers and draftsmen is engaged on the design and about 450 men on the outside construction exclusive of work that is being contracted.

Progress on the work is approximately up to schedule and it is expected to start operation a year from this spring or early summer.

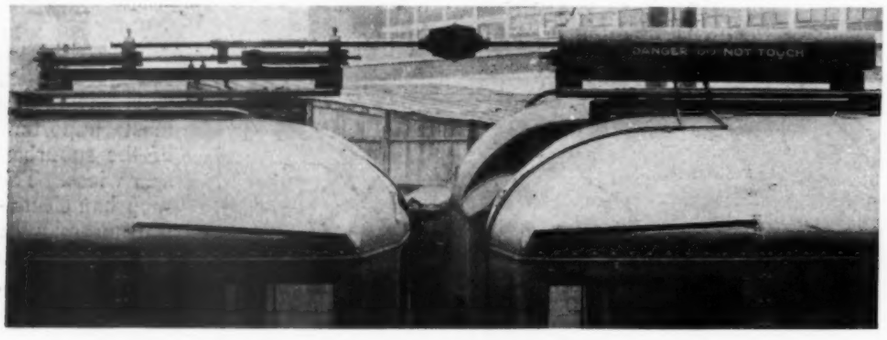


Four-Track Catenary and Signal Bridge

Power Contract and Power Supply

A contract for power has been entered into with the Philadelphia Electric Company for 25-cycle, 13,200-volt alternating current to be supplied at Wayne Junction, which is five miles from Reading Terminal.

This contract is for a term of 20 years which allows the power company to amortize the investment in equipment installed for the railroad. Initially the power is billed at established rates for railroad loads in this territory but when the railroad demand reaches a definite amount, the rates are based on the actual cost of power to the power company including both operating and fixed charges. This will result in a very reasonable cost of power and will enable the railroad to share in the economies which the power companies have made and surely will continue to make in the generation, transmission and distribution.



Connector to be Used for 11,000-Volt Bus on Cars

The Reading Company's power bill for the Philadelphia territory, will eventually be about $1,500,000 a year. This makes apparent the importance of a favorable power rate, particularly one that is made more favorable by increasing load as well as increasing load factor.

To furnish this power the electric company will run underground, 13,200-volt, 60-cycle lines from its Westmoreland substation to Wayne Junction, and at the latter point erect a frequency changer station. Two 15,000-kw. motor-generator sets will be installed initially, while the station will have an ultimate capacity of six such sets. Power will be delivered to the railroad substation bus at its Wayne Junction substation.

Distribution

The 3-wire system with 36,000-volt transmission will be used in the suburban zone. This system with a lower transmission voltage is used on the New Haven, and in a modified form on the Virginian electrification. It has also been successfully used in Sweden.

The substations consist of auto-transformers connected between the 36-kv. transmission wires and the trolley wire with the one-third point connected to the rails.

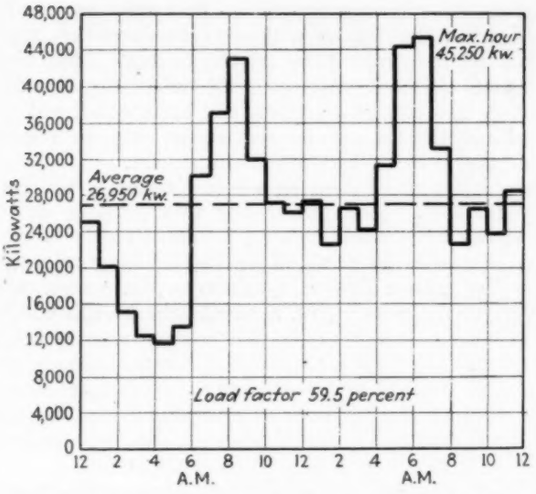
Due to the number of stub lines with consequent frequent substations and the narrow restricted rights of way this system is particularly economical in first cost. It is also advantageous from the standpoint of minimizing inductive interference in communication lines.

For extensions to Bethlehem, New York, etc., 66,000-volt, single-phase transmission lines will be used. Because of the very heavy suburban service of the Central Railroad of New Jersey a source of power for the New York end is considered a necessity.

The zone initially being electrified has an exceptional number of interlockings and junction points. There are nine interlocking plants in the first ten miles of railroad between Reading Terminal and Jenkintown. All contact wires are sectionalized at these points and this results in complicated catenary wiring and the necessity for a large number of trolley circuit breakers.

In the event of trouble or faults in the catenary system, these being much more frequent than in a power company's distribution system, selective action of the circuit breakers is necessary. Several new schemes

Pouring Catenary Foundations



Load Curve for the Future Suburban, Through Freight and Through Passenger Service

of obtaining selectivity have been studied and actually tested out, with small proportional currents in a network set up to duplicate the railroad's distribution system.

Supervisory control will be used to operate all circuit breakers and sectionalizing disconnects between substations.

Overhead Structures

The catenary and transmission structures are of two general types. In the four and five-track territory between Reading Terminal and Wayne Junction the supporting structures consist of a fabricated truss supported by H columns. Here the restricted right of way and proximity of buildings along either side of the railroad makes necessary the carrying of the transmission wires on masts mounted on the truss. Due to the frequent interlockings, there are many signal bridges in this territory and the catenary bridges are designed to accommodate the new signals which are hung from the trusses. These bridges are fitted with ladders, walkways and cages for signal maintenance. All the old signal bridges are being removed.

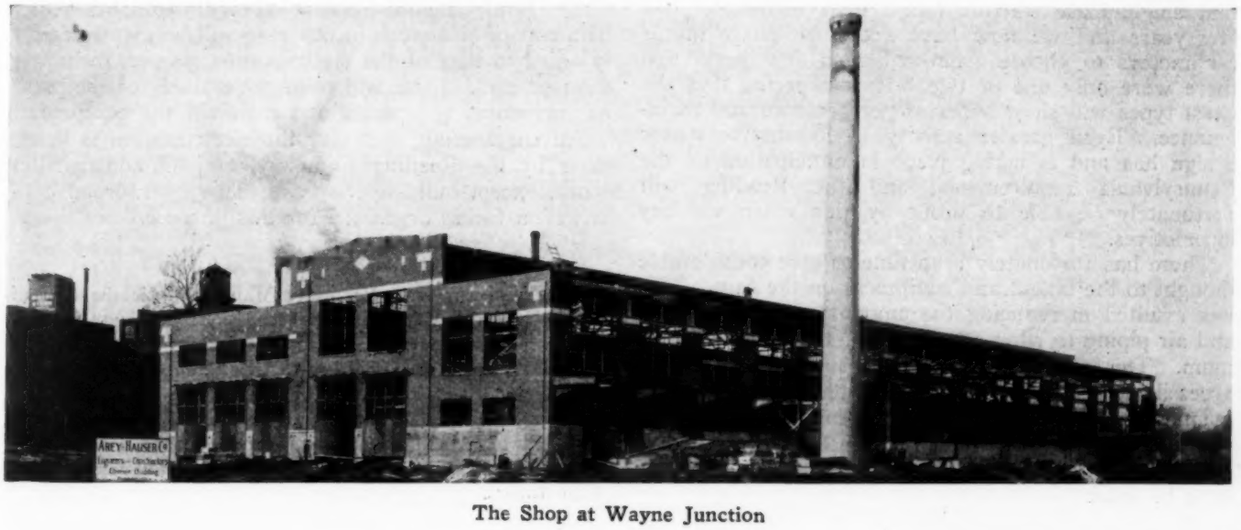
North of Wayne Junction the H columns are run up to carry the transmission wires and H-section cross beams are used instead of trusses. Copper-bearing steel is used for all the lighter steel members as an additional protection against corrosion. No transverse guys are used but there are longitudinal guys for dead ends and at wire crossings. Considerable pains have been taken in the structure and catenary design to standardize as much as possible, keeping the number of types of structures, fittings, etc., to a minimum.

Foundations are all designed with anchor bolts and both gravity and side bearings designs are used. An unusually large number of special foundations were necessary because of interferences and restricted right of way. Overhanging foundations were required in many places to provide the required clearance between the track and the supporting columns.

Catenary

Two different types of inclined catenary are being installed. The first is the conventional type in which a bronze trolley wire is supported from an auxiliary copper messenger which in turn is supported by a bronze main messenger using three wires in all, and 300-foot spans. This is being used between the Reading terminal and Langhorne. The second type has only two wires, and consists of a bronze trolley wire supported from a composite copper and bronze messenger cable with 250-foot spans. It is to be installed from Jenkintown to Lansdale, and on the Hatboro and Chestnut Hill branches. This type is simpler, lighter and less

Catenary Foundation in a Restricted Space



The Shop at Wayne Junction

expensive and the structures can be somewhat less expensive also.

We will thus have a comparison of these two types to use in making decision for further electrification work. It is felt, however, that the latter type of catenary will give entirely satisfactory results, particularly with the method by which we plan to collect the current. This is to use two pantographs in contact with the wire at all times and connected together electrically on the car or locomotive. At least one of these pantographs will be sure to be always in contact with the wires, and as they are in parallel, this should minimize if not eliminate sparking.

With this method on a ten-car multiple-unit train, only two pantographs would be in operation, instead of all ten as in the ordinary scheme where every motor car is independent of each other. This should result in materially less trolley wire and pantograph shoe wear, and also less damage to wires and pantographs in the event of a pantograph fouling the wire system, a not infrequent occurrence.

11,000-Volt Bus on Cars

The use of such a system for our trains necessitates an 11,000-volt bus line run along the top of the cars and a means of connection between the cars which is automatic in its operation. Such a connector was not available and the manufacturing companies were requested to develop one. The designs proposed were not considered adequate or satisfactory, so we undertook to design such a device. This has been done and a bus line connector has been built and operated successfully on two steam cars for the last three months. This connector will be used on the new cars.

While this method of operation has not been used in this country, the use of two pantographs bussed together on locomotives is common practice in Europe and results obtained were carefully checked with operating and maintenance people abroad.

While there will be nothing radical about the new cars, they will incorporate many refinements and improvements and considerable weight reduction over most existing cars of their size. They will be all motor cars, seat 86 passengers and each will be equipped with two single-phase commutating motors of 250 horsepower.

Motors

There has been great activity in the alternating current single-phase traction motor field within the last few years and we now have six single-phase motor car motors to choose from, where a few years ago there were only one or two. It is expected that the latest types will show superior performance and maintenance. Even greater activity in locomotive motor design has and is taking place in anticipation of the Pennsylvania requirements, and the Reading will fortunately be able to profit by this when we buy locomotives.

There has fortunately been time to give considerable thought to the layout and equipment on the cars. This has resulted in reducing the amount of conduit, wire and air piping to what seems to be an irreducible minimum. The layout has been made such as to be most accessible for inspection and maintenance. Improvements have also been made in the ventilating apparatus and ducts, and a new system, designed by the railroad, of filtering snow and dirt from the ventilating air is to be used.

Motors have been arranged so that they can be removed from the trucks without removing the truck from under the car and the car body can be lifted from the trucks without disconnecting ventilating connections. A new design of truck has been tested out for several months on one of our steam cars in regular service and may be used on the new cars.

The high cost of heating electric trains is not generally realized. The power for this purpose during the heating season amounts on different roads to from 20 per cent to as much as 40 per cent of the total power used. To reduce this to a minimum, consistent with comfort to the passengers, a double thermostat control will be used. A thermostat will keep the temperature at 70 deg. during the time the engineman is in the cab and at 50 deg. at all other times. Also provision is made whereby the engineman can change from the high to the low thermostat for all cars in the train to economize heat when approaching a terminal.

A new automatic door closing device will be used which automatically closes all end doors in the train immediately the train starts after each station stop. This in addition to saving heat will avoid drafts because of the doors being left open until they are closed by the trainmen.

Shop Facilities

A new car shop and storage yard is nearing completion at Wayne Junction for the inspection and repair of the cars and future locomotives, and to store them during the day when not in use. The shop has five tracks, three for inspection, two for repairs. It is 320 feet long and can be extended to twice its present length for future requirements. This shop is being pushed to completion for use as a construction storehouse and headquarters for the overhead construction, since it is strategically located for this purpose.

Adjacent to the shop will be the frequency changer substation, the Wayne Junction transformer substation, linemen's maintenance headquarters and the load dispatchers' office. This should make a compact and efficient operating arrangement.

A large amount of work is required to prepare a railroad for electrification. Additional clearance must be provided where required for the overhead wires; grade crossings eliminated; direct current signaling changed over to alternating current; underground conduit installed; telephone wires put in cable, in some localities underground; foreign wire crossings rearranged and eliminated; new storage yards built, etc. The cost of this work in our case will be approximately equal to that of the electrification proper, including the new cars. Later will come the training of the present personnel to operate and maintain the equipment.

All engineering work for the electrification is being done by the Reading Company, and all construction work, except buildings, is being done by railroad construction forces organized for this purpose.

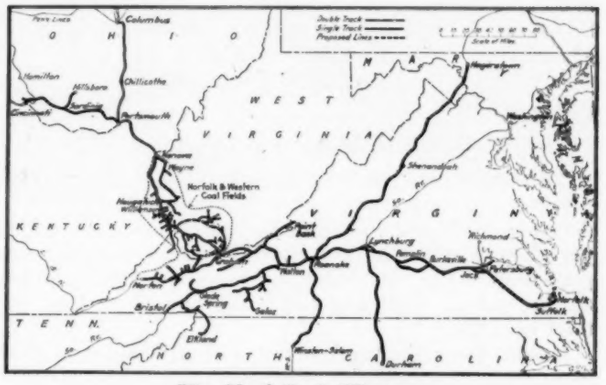
THE FLIGHT OF THE MIDNIGHT MAIL.—This is the title of a little pamphlet which has been issued by the Atlanta & West Point, reprinting newspaper accounts which were published in Atlanta papers in 1905, when the operation of the fast New York-New Orleans mail train was one of the notable achievements of the West Point Route. The stories were by four reporters of Atlanta papers who rode on the locomotives: Messrs. R. W. Gorman, Smith Clayton, Edwin Johnson and Alan Rogers.

N. & W. Has Its Best Year

Earnings equal $29 per common share—Transportation ratio declines to 22—Inventory reduced 25 per cent

THE Norfolk & Western in 1929 had the most successful year in its history. Operating revenues, $117,631,751, it is true, were $2,777,287 lower than in the preceding peak year, 1926, but net from railway operations, $51,580,504 was $2,398,380 greater than in that year Net income after fixed charges totaled $41,786,461, or $4,918,955 greater than in 1926. The improvement in 1929, as compared with 1928, is still more marked. Operating revenues were almost 10 per cent higher, while operating expenses decreased slightly less than one per cent. Net from railway operations was 27.6 per cent higher and net income rose 36 per cent.

While the Norfolk & Western has been increasing its traffic and earnings during the period since the war, the benefits have not been retained wholly by the company but have to an important degree accrued to the patrons of the line; average revenues per ton-mile of freight were almost 20 per cent less in 1929 than they were in 1921.



The Norfolk & Western

Table I—Comparison of Selected Freight Operating Statistics

	1929	1928	Per cent of change Inc.	Dec.
Mileage operated	2,230	2,231	...	...
Gross ton-miles (thousands)	33,125,629	30,045,326	10.3	
Net ton-miles (thousands)	17,779,230	15,978,979	11.3	
Freight train-miles (thousands)	10,388	9,866	5.3	
Freight locomotive-miles (thousands)	12,357	12,070	2.4	
Freight car-miles (thousands)	673,010	619,505	8.6	
Freight train-hours	759,686	726,198	4.6	
Car-miles per day	48.3	43.9	10.0	
Net tons per loaded car	45.2	43.8	3.2	
Per cent loaded to total car-miles	58.4	58.9		0.8
Net ton-miles per car-day	1276	1131	12.8	
Freight cars per train	65.8	63.8	3.1	
Gross tons per train	3,189	3,045	4.7	
Net tons per train	1,711	1,620	5.6	
Train speed, miles per train-hour	13.7	13.6	0.8	
Gross ton-miles per train-hour	43,604	41,373	5.4	
Net ton-miles per train-hour	23,403	22,004	6.4	
Lb. coal per 1,000 gross ton-miles	121	129		6.2
Loco.-miles per loco.-day	65.3	57.6	13.4	
Per cent freight locos. unserviceable	10.2	9.4	8.6	
Per cent freight cars unserviceable	1.1	1.2		8.3

Operating Ratio at New Low

The trend of the operating efficiency of the road is disclosed by the operating ratio, which reached the low figure of 56.15 per cent. Transportation expenses in 1929 actually decreased 2.7 per cent from 1928 in the face of an increase of 11 per cent in revenue ton-miles. Maintenance of way expenses declined 4.1 per cent and maintenance of equipment expense increased 4.6 per cent. The ratios of these important components of operating expenses to operating revenues were in 1929 and 1928 respectively: Maintenance of way, 12.6 and 14.5; maintenance of equipment, 17.7 and 18.6; transportation, 22 and 24.9.

Further comparisons in operating efficiency are shown in Table I, which gives selected freight service statistics for 1929 and 1928. It is to be noted that an increase of over 11 per cent in net ton-miles was moved with an increase of less than half that percentage in train-miles and with an increase of only 2.4 per cent in locomotive-miles. Car-miles per day increased 10 per cent, attaining the average of 13.7 m.p.h., which is a most creditable achievement for a coal road with a large mileage of branch lines. Average tons per car were 3.2 per cent greater. Gross and net ton-miles per train hour, in which figure the Norfolk & Western is surpassed by only one or two railroads in the entire country, rose 5.4 per cent and 6.4 per cent respectively.

Table II—Norfolk & Western Operating Results, Selected Items

	Years 1922 to 1929, Inclusive							
	1922	1923	1924	1925	1926	1927	1928	1929
Average mileage operated	2,238	2,238	2,241	2,241	2,241	2,241	2,240	2,240
Total operating revenues $	90,352,887	95,591,682	97,707,310	105,218,991	120,409,038	110,948,200	106,947,111	117,631,752
Total operating expenses $	68,052,804	72,598,871	69,875,109	67,934,815	71,226,914	69,696,125	66,521,695	66,051,247
Net operating revenues $	22,300,084	22,992,811	27,832,202	37,284,175	49,182,124	41,252,075	40,425,415	51,580,504
Railway tax accruals $	6,000,000	6,225,000	7,400,000	8,600,000	11,075,000	10,300,000	9,200,000	10,300,000
Railway operating income $	16,292,145	16,741,639	20,418,662	28,655,153	38,094,793	30,938,334	31,218,144	41,246,346
Hire of freight cars—Cr. Bal. $	2,161,002	3,003,995	1,726,291	2,386,617	2,418,469	2,690,571	2,866,195	2,840,734
Net railway operating income $	18,590,689	20,008,866	22,463,369	31,510,952	40,922,151	34,010,950	34,204,057	44,208,196
Gross income $	19,774,166	23,613,076	23,546,593	32,391,083	42,430,648	36,195,468	36,105,884	47,143,913
Interest on funded debt $	5,057,789	4,622,613	5,064,022	5,366,857	5,224,780	5,127,620	4,966,918	4,998,828
Net income $	14,554,989	18,788,497	18,243,348	26,564,759	36,867,506	30,651,295	30,727,043	41,786,461
Preferred dividends (4) $	919,692	919,692	919,692	919,692	919,692	919,692	919,692	919,692
Common dividends—Rate	8	8	8	8	10	10	10	12
Common dividends—Amount $	9,934,008	10,304,433	10,563,752	10,890,199	13,883,657	13,985,910	14,017,090	16,874,536
Earnings per share on com. stock	$10.67	$13.85	$12.85	$18.69	$25.71	$21.26	$21.27	$29.08
Revenue ton-miles (thousands)	10,422,301	11,161,523	12,130,124	13,683,557	16,719,412	15,024,347	15,015,685	16,730,308
Revenue pass.-miles (thousands)	261,756	296,044	262,306	235,135	221,809	202,062	168,626	151,546
Revenue per ton per mile (cents)	0.745	0.729	0.699	0.682	0.650	0.666	0.649	0.648
Total revenue tons	37,357,078	42,574,883	44,425,701	50,266,557	58,188,077	54,846,560	54,053,476	59,712,795
Tons revenue bituminous coal	28,120,614	29,468,395	32,579,530	38,122,834	45,599,980	42,634,250	42,305,396	47,903,916
Per cent bituminous coal of total	75.28	69.22	73.33	75.84	78.37	77.73	78.27	80.23
Transportation ratio	32.27	33.54	29.90	26.74	25.15	26.13	24.88	22.02
Operating ratio	75.27	76.05	71.51	64.57	59.15	62.82	62.20	56.15

A further improvement was made in fuel efficiency and in average daily locomotive mileage, while unserviceable freight cars were reduced to the extremely low ratio of 1.1 per cent of total.

Net charges for additions and betterments in 1929 totaled $11,376,020, of which $2,163,722 was for equipment, the balance being for roadway and structures. New equipment purchased in 1929 included 25 passenger train cars and 31 units of work equipment. The company laid 234 miles of track with new 130-lb. rail, making a total of 1,513 miles equipped with rails of this section. Other expenditures on roadway included grade crossing elimination at Columbus, Ohio, and numerous smaller projects of diverse character at many points on the line.

Reduced Materials Inventory

The balance sheet for the end of 1929 discloses an inventory of materials and supplies of $7,665,854, a decrease of $2,552,867 from the preceding year, which year also showed a marked reduction from the year preceding. The inventory of materials and supplies at the end of 1929 was but little more than half the total of 1923.

Results from the transportation of passengers in 1929 were again disappointing, revenues being but $5,110,927, a decrease of almost 11 per cent from the preceding year. Passenger revenues for the year were but 4.3 per cent of operating revenues, so that the company with the great increase it has had in freight revenues does not need to be seriously concerned because of the decline in passenger earnings. Even if revenues from this source should cease entirely, the railroad would not thereby cease to be a profitable enterprise.

The company during the year transferred its pension reserve fund to independent trustees and appropriated from surplus $662,133 for the fund, which sum was estimated by actuarial computation to take care of the pensions of the 122 employees pensioned during the year during their expected terms of life.

Surplus Greater Than Common Stock

The net income of the Norfolk & Western in 1929, after payment of the regular dividends of 4 per cent on the adjustment preferred stock, was equivalent to $29.08 per share on the common stock, the highest earnings per share in the history of the company. The regular dividend of $8 per share was paid, and also an extra dividend of $4. After the payment of all dividends an increase of $24,886,595 in the profit and loss balance remained. The corporate surplus at the end of the year totaled $186,800,062, or 1.14 times outstanding common stock. Capitalization at the end of the year was 58.6 per cent stock and only 41.4 per cent funded debt.

The terminals used by the company at Sewalls Point, Norfolk, Va., and owned by the municipality were acquired by the N. & W. during 1929 under a lease agreement whereby the railway will pay rentals sufficient to pay off the municipal bonds issued to pay for its construction during a period of 23 years, after which time the property will be conveyed to the railroad. Construction of the lines of controlled companies, the Big Sandy & Cumberland and the Guyandot & Tug River progressed during the year, the purpose of the lines being to open up new coal lands.

The Norfolk & Western, it needs scarcely be said, is primarily a coal road. Bituminous coal in 1929 made up 77.73 per cent of its total tonnage. Its coal is of a high grade and, produced in quantity, the Norfolk & Western has developed an intensive railroad to handle this commodity in large quantities efficiently and economically. The railroad co-operates closely with its coal shippers, the two interests realizing their mutual interdependence. The interest of the railway in the welfare of this, its most important industry, is typified by its advertising campaign, which not only tells of the service of the railway but also features the advantages of coal mined in its territory.

Since the publication of the Interstate Commerce Commission's consolidation plan there has been a great deal of discussion regarding the status of the Norfolk & Western under that plan. Whatever the opinion may be on this subject, the fact remains that the N. & W. as it now is, because of its close understanding of its shippers' problems, its excellent service, its efficiency of operation and its conservative capitalization is in an extremely strong position—either to continue indefinitely a prosperous independent career or to form an unusually strong unit in an amalgamated company.

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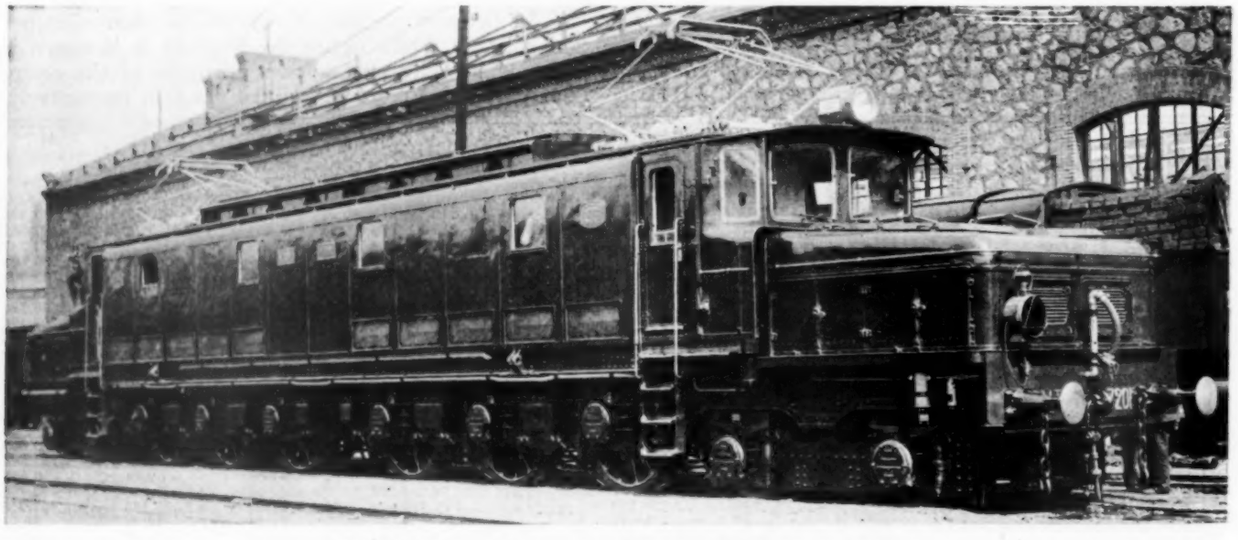
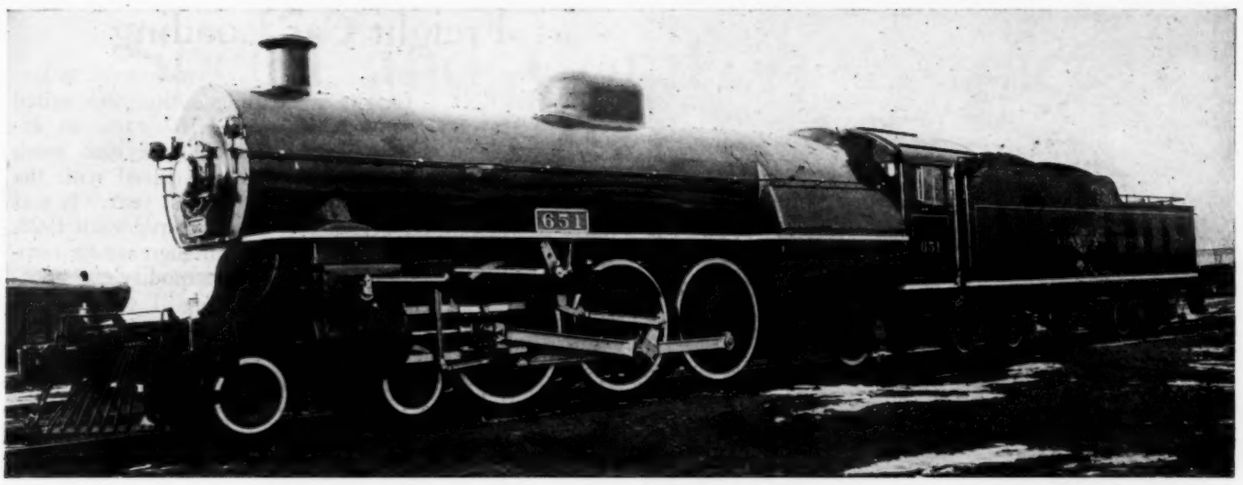


Electric Locomotive on the Northern Railway of Spain



Delaware & Hudson 4-6-2 Type Locomotive Equipped with Oscillating Poppet Valves

Pacific Type Locomotive Equipped with Poppet Valves

Delaware & Hudson reports good service with oscillating poppet valves actuated by Walschaert gear

OSCILLATING-TYPE poppet valves were applied in May, 1926, to a Delaware & Hudson 2-8-0 type locomotive, road number 925, and were in service three years and seven months, making a total mileage of approximately 142,000 miles. A check of the engine failures reported during that period showed only one delay of 1 hr. 30 min. charged against the valves. This failure was due to a cotter pin working out which resulted in two broken springs in the right exhaust valve. This test proved to the satisfaction of the management that poppet valves would perform satisfactorily in freight service.

Further tests of the poppet valves were recently inaugurated by applying the valve to a 4-6-2 type locomotive, road number 651. It is expected that this valve will permit the operation of the locomotive with a shorter cut-off than would be possible with the usual design of piston valve.

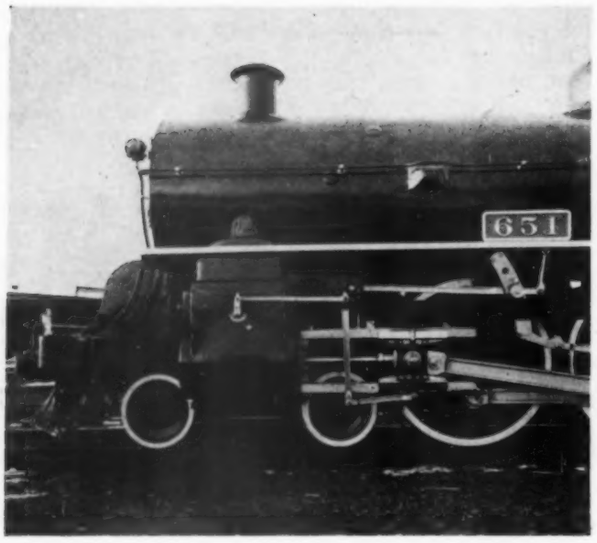
The steam pressure on locomotive No. 651 has been raised from 260 lb. to 275 lb. The locomotive has a rated maximum tractive force of 44,000 lb. It has 73-in. diameter drivers, 22-in. by 28-in. cylinders, and carries a weight of 191,000 lb. on the driving wheels.

Built With Concealed Auxiliaries

This locomotive is of the same class and design as locomotive No. 652, an illustration of which appeared in the July 20, 1929, *Railway Age*. Locomotive No. 651 is built with the same stream-line effect and concealed auxiliaries as was the No. 652. The boiler jacket covers all the pipe fittings and other appliances that usually appear on the locomotive of conventional design used in this country. The headlight is located in the center of the smokebox door. The headlight generator, air compressors and power reverse gear are located between the frames below the boiler. This location tends to lower the gravity of the locomotive, and

Table Showing the Dimensions and Weights of the D. & H. 4-6-2 Type Locomotive No. 651

Railroad	Delaware & Hudson
Builder	Delaware & Hudson
Service	Passenger
Rated maximum tractive force	44,000 lb.
Weight on drivers ÷ tractive force	4.35
Valve gear, type	Walschaert-Poppet
Valves, maximum travel	7 in.
Weights in working order:	
On drivers	191,000 lb.
On front truck	55,500 lb.
On trailing truck	53,500 lb.
Total engine	300,000 lb.
Total tender	160,500 lb.
Total engine and tender	460,500 lb.
Wheel bases:	
Driving	13 ft.
Total engine	35 ft. 3½ in.
Total engine and tender	86 ft. 6¾ in.
Wheels, diameter outside tires:	
Driving	73 in.
Front truck	33 in.
Trailing truck	45 in.
Boiler:	
Type	Conical
Steam pressure	275 lb.
Fuel, kind	Anthracite
Diameter, first course, inside	74½ in.
Firebox, length and width	116⅛ in. by 108 in.
Tubes, number and diameter	30—2¼ in.
Flues, number and diameter	142—3½ in.
Length over tube sheets	19 ft. 7 in.
Grate area	87.09 sq. ft.
Heating surfaces:	
Firebox	283 sq. ft.
Arch tubes	37 sq. ft.
Tubes and flues	2 879 sq. ft.
Total evaporative	3.199 sq. ft.
Superheating	1 495 sq. ft.
Combined evap. and superheating	4,694 sq. ft.
Tender:	
Water capacity	11,000 gals.
Fuel capacity	14 tons



Valve Motion Arrangement of Locomotive 651

it is reported to have considerably improved the riding qualities of the locomotive when traveling at high speed, especially in and out of curves. The whistle is located in the dome casing and an electrically operated gong is located just to the rear of the pilot.

Operating Record

Up to March 1, 1920, locomotive No. 652 had operated an average of 7,000 miles per month, a total of about 58,000 miles. One delay of 14 min. has been charged against this locomotive during that period of operation. That delay was due to insufficient lubrication of a link pin which ran hot the first week the locomotive was placed in service.

Locomotive No. 652 was also cut from the train at Rouses Point, N. Y., on account of generator trouble which affected the operation of the automatic train-control equipment. This was compulsory according to law, which prescribes that a locomotive having inoperative train control equipment must be removed from the train at the first locomotive repair point.

This locomotive has been hauling the "Laurentian" between Troy, N. Y. and Montreal, Que., a distance of approximately 250 miles, in all kinds of weather. It has had to contend with ice and snow conditions, and temperatures as low as from 20 to 25 deg. F. below zero. These severe operating conditions have shown that the problem of maintenance and servicing at terminals was not complicated to the extent anticipated.

The Delaware & Hudson has now in the process of construction a 4-6-2 type locomotive, No. 653, which will have the conventional type of boiler operating at a pressure of 325 lb.

THE ILLINOIS CENTRAL has changed the names of four of its trains. Train No. 1, Chicago to New Orleans, formerly known as the New Orleans Special, and No. 2, the Fast Mail, running in the opposite direction, have been named the Creole. Train No. 3, known as the New Orleans Limited, Chicago to New Orleans, and No. 4, the Chicago Limited, running in the opposite direction, have been named the Louisiane. Train No. 12, the Northern Express, New Orleans to Memphis, and No. 15, the Southern Express, have been named The Planter. Trains 15 and 16, between Chicago and Ft. Dodge, Iowa, have been named the Iowan.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended March 15 amounted to 881,187 cars, an increase as compared with the previous week but a reduction of 77,414 cars as compared with the loading in the corresponding week of last year. It was also a reduction of 61,385 cars as compared with 1928. Loading of livestock showed a slight increase as compared with last year, but all other commodity classifications showed reductions, including 27,481 cars in coal loading and 25,611 cars in loading of miscellaneous freight. All districts except the Southwestern showed reductions as compared with the corresponding weeks of both 1929 and 1928. The summary, as compiled by the Car Service Division of the A. R. A., follows:

Revenue Freight Car Loading

Week Ended Saturday, March 15, 1930

Districts	1930	1929	1928
Eastern	200,084	226,886	213,502
Allegheny	179,409	199,100	186,395
Pocahontas	46,052	54,983	53,667
Southern	142,336	149,692	158,713
Northwestern	108,120	112,358	119,595
Central Western	129,355	135,801	136,286
Southwestern	75,831	79,781	74,414
Total Western Districts	313,306	327,940	330,295
Total All Roads	881,187	958,601	942,572
Commodities			
Grain and Grain Products	39,257	43,237	44,422
Live Stock	23,861	22,529	29,229
Coal	130,300	157,681	160,365
Coke	9,689	13,278	11,094
Forest Products	60,215	66,605	67,204
Ore	8,924	11,925	8,113
Merchandise L.C.L.	252,265	260,959	260,303
Miscellaneous	356,776	382,387	361,842
March 15	881,187	958,601	942,572
March 8	873,548	947,539	951,556
March 1	899,189	978,201	959,494
February 22	828,890	905,503	869,417
February 15	891,597	957,498	888,586
Cumulative totals, 11 weeks	9,509,310	10,221,932	9,893,259

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended March 15 totaled 60,305 cars, a decrease from the previous week of 820 cars and a decrease from the same week last year of 6,148 cars.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
March 15, 1930	60,305	38,282
March 8, 1930	61,125	37,970
March 1, 1930	59,840	38,205
March 16, 1929	66,453	47,150
Cumulative Totals for Canada		
March 15, 1930	622,245	405,470
March 16, 1929	677,458	469,292
March 17, 1928	691,654	433,397

* * *

The Pennsylvania's New Station at Lancaster, Pa.

Speed and Comfort Attract Passengers

Central of New Jersey also stresses individuality in its trains

Distinctive Signs Mark the New Central of New Jersey Trains

BY the establishment of new trains and the proper promotion of traffic on these trains, the Central of New Jersey has materially increased its passenger business between New York and Atlantic City, and between New York and Pennsylvania points in the vicinity of Wilkes-Barre, in the last few months, while a satisfactory business has been built up between New York and Williamsport since the first of the year.

This performance, at a time when passenger travel generally is showing evidence of decline, was accomplished by putting on new trains, stressing the factors of speed and comfort on the railway, as compared with other forms of travel, and by keeping the trains before the eye of the traveling public by means of emphasizing their individuality. It was not deemed sufficient merely to give the trains attractive names and to advertise these names. In addition, these trains were made distinct from all other trains on the railway by varied color schemes, by name-plates attached to the locomotives, and even by different and distinctive whistles. Thus the individuality of the trains is impressed upon the public through both the eye and the ear.

The latter device has proved particularly effective, checks having been made which show that many people along the line comment upon the passage of these trains each day, identifying them from a distance by means of the sound of the whistle. Taxicab drivers rely on the whistle to notify them when it is time to go to the station to meet the trains, and comment upon this fact to their passengers.

The Central of New Jersey has operated a service between New York and Atlantic City for many years with some measure of success. A study of the situation revealed, however, that there were greater potentialities in the service, and much business to be gained, if the proper kind of service were rendered. Accordingly, on February 21, 1929, a series of trains, known as the Blue Comets, were placed in this service. As nearly as could be anticipated in advance, these trains would meet the needs both as to schedules and equipment. The resultant increase in passenger travel on the C. of N. J., between New York and Atlantic City indicates that such needs were adequately met.

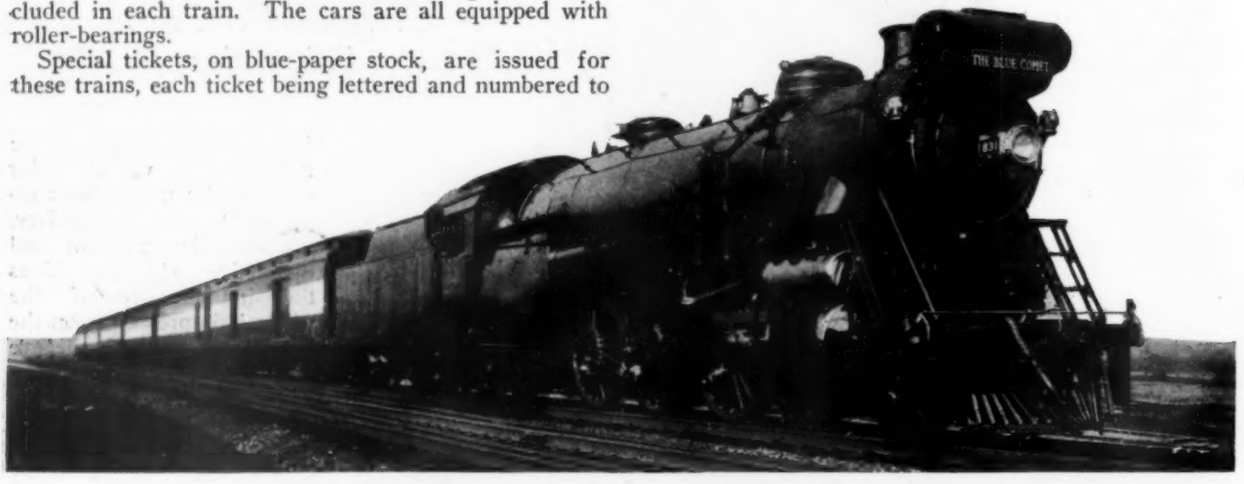
The schedules are conveniently arranged, the 136-mile run being made in 168 minutes. Two Blue Comet trains leave New York daily; one at 11 a.m., the other at 3:30 p.m., the return trains leaving Atlantic City at 9:15 a.m., and 4:35 p.m., except Sunday, when the afternoon Blue Comet leaves at 5:30 p. m. These schedules provide convenient daily and week-end service from and to the coast resort.

The equipment consists entirely of de luxe coaches,

and to aid in individuality, the exteriors of the entire trains, including the locomotives, are finished in ultramarine blue and cream colors. This decorative scheme is carried throughout the interior fittings, which are blue, as are the porters' uniforms and the table service and linen in the dining cars.

The coaches and smoking cars are equipped with bucket-type seats, with center arm rests which may be lowered. Seats in the coaches are upholstered in blue mohair, while smoking car seats are covered with blue leather. An observation car and a dining car are included in each train. The cars are all equipped with roller-bearings.

Special tickets, on blue-paper stock, are issued for these trains, each ticket being lettered and numbered to indicate the coach and seat to which the passenger is assigned.



The New York-Atlantic City Train Is Finished in Cream and Blue

The combination of individuality, comfort and speed has resulted in success in the operation of these trains, which make only one stop between New York and Atlantic City. The average consist of each train is an observation car, three coaches, a diner and a combination car, and, in the summer particularly, there is a great demand for the reserve equipment, for use in special trains between the two points.

New York and Eastern Pennsylvania Service

A similar study of the situation as to travel from Wilkes-Barre, Pa., Allentown, Bethlehem and Easton to New York, indicated the probability of success of a somewhat similar service between these points. Accordingly, on November 7, the "Bullet" was established. This train leaves Wilkes-Barre at 7 a.m., Allentown 9:09, Bethlehem 9:18, and Easton 9:35, arriving in New York at 11:20 a.m., making the 172-mile run in 4 hr. 20 min. Returning, the train leaves New York at 6 p.m., thus allowing 6 hr. 40 min. in New York, and arrives at Easton at 7:38, Bethlehem 7:55, Allentown 8:07 and Wilkes-Barre at 10:20.

To promote individuality, this train is decorated throughout in olive-green, and carries the name-plate above the headlight on the locomotive. The locomotives are finished in olive-green, with gold stripings and chromium-nickel trim.

The smoking car has a green and white rubber-tiled floor and green-leather upholstered seats, with individual ash receivers. The coach seats are provided with linen slip-over headrests, and each coach has a ladies' lounge with green-leather upholstered wicker chairs, full-length mirror, electric fan, lavatory and connecting toilet. The coach floors are rubber-tiled in green and white, with an aisle strip of green-figured carpet, and the baggage racks are cream-colored.

Other equipment includes a club-diner, and an observation car of the latest Pullman design, having a roomy platform which seats eight persons. As on the "Blue Comets," special attention is paid to the dining car service on these trains, both as to quality of food and moderate prices, a special steak dinner being served, for example, for $1.25.

The usual consist of this train is a combination car, two coaches, a club-dining car, and a parlor-observation car. As in the other case, speed, comfort and convenient schedules have had their effect in attracting business, and, in the first three months of the train's operation, passenger travel on the C. of N. J., between the points served, has shown a most satisfactory increase.

Another new service that is attracting considerable business is the "Williamsporter," on which passenger service was inaugurated January 27, 1930.

Thus, even in the face of generally declining passenger business, the Central of New Jersey has installed new trains. Of course, the mere installation of new trains does not account for the success in increasing passenger travel. The schedules are arranged in each case to suit the convenience of the passengers rather than the convenience of the railroad. In addition, the factors of speed, comfort and individuality have been stressed, and, in the cases mentioned, at least, these factors have been quite enough to attract passengers back to the railway in more than sufficient numbers to justify the continuance of the trains, and on a profitable basis.

* * *

A Missouri Pacific Train Leaving Omaha, Neb.

Government Completes Evidence in First "Reciprocity" Case

Last hearings on Swift methods of selling railroads held in New York and Chicago—Wait to hear packers' side

AFTER a series of hearings, extending over a period of six weeks, the Federal Trade Commission completed the gathering of the evidence sought in the first of its "reciprocity" buying cases with hearings in New York on March 20 and 21, and Chicago last Monday and Tuesday.

The hearings in New York centered around the New York Central Lines, the New York, New Haven & Hartford, the Lehigh Valley and the Erie, and were the most hotly contested proceedings held thus far, being marked from the beginning by arguments over the competence of witnesses, rights of opposing counsel to review correspondence submitted to the commission, or concerning the propriety or admissibility of evidence. The hearings were complicated by the death or absence of witnesses considered important by the commission, while most of the correspondence and testimony was admitted only over objection.

During the hearing it was brought out that the draft gear exploited by Swift & Company has been acquired and its manufacture discontinued by the Waugh draft gear, which is reported to be controlled by Armour & Company, another packer.

B. Campbell, vice-president of traffic of the New York, New Haven & Hartford, told about receiving letters from W. A. Mayfield, assistant freight traffic manager of Swift & Company, about the draft gear and centering devices of the Mechanical Manufacturing Company, and referring them to the late N. M. Rice, vice-president of purchasing of that road.

E. V. Murphy, who represents the New Haven road at Chicago, where Swift & Company is located, testified that after talking with W. A. Mayfield, he asked for the "co-operation" of his purchasing department and subsequently asked for reconsideration of the gear. He had written his people that "they were contended with aggressive competition" and that "it seems essential to use the deal with competition which is brought before all competitors in the same way."

C. R. Painter, purchasing agent, wrote to the Mechanical Manufacturing Company on November 8, 1929, offering to buy five gear, provided payment was deferred until the gear proved satisfactory and free gear servicing was furnished. The New Haven purchased the gear subsequently without insisting upon these terms, according to Mr. Painter, who also testified that the number of gear of all kinds bought during 1929 by the road was 3,300 sets.

Draft Gear Tests

J. C. Hassett, mechanical engineer, said that he had investigated the gear and did not consider it as efficient as it should be. He thought it would cause high maintenance costs on cars and have a harmful effect on lading. As a result of this investigation, he did not recommend the purchase of the gear. He said five gear were received in January, 1930, but that they have not been applied. Later he said that he had made his recommendations from an examination of blue prints and drawings submitted and had not made an actual test. The attorney for the respondents asked several questions about the capacity of the gear, based upon comparative data on draft gear of various makes, contained in a report of tests made by the Rock Island during 1929, in which the engineer in charge reported his conclusions in part as follows:

The failure of the housings on two out of the three gears tested and the breakage of one wear plate indicate that the quality of the metal and its soundness were not satisfactory. Also, the galling, cutting and bending of the spring seats would indicate that these were too soft and ductile for service.

The workmanship in preparing the contact faces was not first class. To get perfect uniform contact on all surfaces would mean to demand a grade of workmanship that would hardly be found in the average shop devoted to this class of work.

While in no case did the housing stick or fail to return, filling the pocket to its normal position, the friction wedges, either in part or as a whole, repeatedly stuck and could be jarred loose only after subsequent blows under the drop. This left the gear functioning largely throughout its travel, under the action of the spring alone.

The gear travel under increasing height of blow was irregular, there being frequent and numerous occasions where the gear travel was less for a higher blow than for the preceding lower blow. This is also reflected in the recoil and would not be desirable.

The capacity of the gear complied with the proposed A. R. A. limit of minimum capacity, also with the capacity requirement at one-half travel and at full travel.

In the three gears tested the recoil was respectively 39.95, 33.39 and 25.53, with an average of 30.97, whereas the specification states that the gear will not be satisfactory if this figure exceeds 25 per cent, using a 9,000-lb. weight.

There was only one gear out of the three which could be considered complying with the sturdiness requirement, the others failing to meet the requirements largely on account of breaking of an essential part.

When the respondent's attorney asked Mr. Hassett whether a gear would be satisfactory if the capacity was above 18,000 lb. at complete compression, he answered that it depended upon the time element, and he also testified that he did not know if the Durable gear absorbed shocks without loss of time. He said that the fall of the test load would affect the results; also that absorption, recoil and smoothness of operation must be considered in determining the merits of the gear.

New York Central Solicited

On the New York Central Lines, the Swift methods of selling were identified in a letter written by R. O'Hara, traffic manager of Swift & Company, to R. D. Starbuck, vice-president of operations, in December, 1928, in which the writer referred to a talk with Mr. Starbuck in New York about the draft gear, and said:

"Is it a fact that the New York Central will specify these gear to be used on equipment for the Michigan Central, Big Four, Chicago Junction, Indiana Harbor Belt and Chicago River & Indiana?

"If so, it will save me considerable time.

"Can you give me some idea when we may expect an order

from you for some of these gear, and also will you please let me know if you are utilizing centering devices at the present time?"

P. W. Kiefer, superintendent of motive power and rolling stock of the New York Central Lines, said that subsequent to this correspondence, an inquiry was made about the gear and four gear were obtained for a laboratory test and five other gear for application to locomotive tenders for road-service study. The laboratory tests were completed, but only one of the gear for service tests was applied, because a person represented himself to be in control of the Durable gear at that time and was not interested in having the tests made. The man was A. J. Pizzini, president of the Waugh Equipment Company, manufacturer of the Waugh draft gear.

H. W. Faus, engineer of tests of the New York Central Lines, conferred with R. O'Hara and officers of the Mechanical Manufacturing Company in Chicago, in January, 1929, and inquired about the gear. The Mechanical Manufacturing Company had no laboratory and, not being satisfied with the report of the tests the Mechanical Manufacturing Company had made "in that it was not consistent with the established procedure of the New York Central Lines," he arranged for a laboratory test of four gear by New York Central test men working under his jurisdiction. He concluded that, while the gear had a little higher capacity at closing point under a 9,000-lb. drop hammer than required for a first-class gear, it was substantially lower in endurance than the New York Central would like to see and was also deficient in sturdiness and uniformity of operation, and he reported that the gear was not one he could recommend for New York Central equipment. The gear used in the laboratory tests were returned to the Mechanical Manufacturing Company under seal and he went to Chicago and pointed out the defects in the gear and made suggestions for improvement. The eight gear, four for laboratory tests and four for road service tests, were all of the Durable gear which the New York Central Lines bought.

D. G. Roesch, assistant to vice-president of traffic of the Lehigh Valley, identified correspondence of the late J. A. Middleton, including a letter in which R. O'Hara said that Swift & Company "are expecting the carriers that they patronize liberally to reciprocate by using the gear and centering devices."

H. J. McQuade, purchasing agent, testified that the Lehigh Valley purchased 6,465 gear of various kinds for replacements in 1929, and that this number included 200 gear bought from the Mechanical Manufacturing Company at a price of $65 a set.

Erie A Large Buyer

Charles Denney, president of the Erie, which was the largest buyer of Durable gear, did not hold that office when the Erie was first solicited by Swift & Company for draft gear purchases; but letters showed that R. O'Hara, traffic manager of Swift & Company, had talked with the former president, J. J. Bernet, in 1928, and that his mechanical assistant, W. J. Black, went to Chicago to look over the situation. In a letter of January 9, 1929, among other things, Mr. O'Hara said:

"Understand that you are contemplating building 3,000 cars this year. Wish to know what number you will have equipped with the Durable gear."

Mr. Denney testified that 1,000 new cars were equipped with the gear during 1929 and, when asked who authorized these gear, said that he was not a party to any consideration about putting the gear on the road, but concurred after a test was made when he said: "My information was that the gear had been inspected and a test observed and reported on satisfactorily. The gear in a measure is in the development stage and it appeared wise, as I saw it, from expressed opinions, to apply the gear in order to have data along with data on other gear and because the test showed that the device was a sturdy gear made by a responsible company."

Questioned by the attorney for the respondent after his attention had been called by the government to failures of the Durable gear on the Erie, he said that he had heard of gear of other makes breaking in service and he supposed that the failure could be caused by improper application to the car. When again questioned by the government's attorney about the test he relied upon to concur in the purchase of the Durable gear, he said this was a laboratory test made at Armour Institute, and that he knew nothing about it except the conclusions given him. He said it was not unusual for him in his position as president to rely upon the conclusion of subordinates.

The purchases of Durable gear by the Erie, in 1929, according to W. R. Collins, manager of purchases of the Erie, comprised 12 sets for locomotive tenders and 1,000 sets, or 2,000 gear, for new cars. He did not have a record of the number of gear bought for repairs. The 2,000 gear were purchased for hopper cars in February or March, 1929. The prices f.o.b. Butler, Pa., at which the various manufacturers of gears, quoted in connection with the cars equipped with Durable gear, were:

Maker	Type	Price, f.o.b. Butler
Mechanical	Durable	$67.95
Waugh	402	57.01
National Malleable	M-17	55.00
Union	Cardwell	58.00
Westinghouse	N-11-A	70.00
Bradford	R-1-A	63.32
Standard Coupler	Sessions	65.00
Miner	A-78XB	80.00
Miner	A-79XB	61.50
Miner	A-22XB	55.00

C. James, superintendent of motive power of the Erie, said that the Erie had tested the Durable gear in March or April, 1929, by putting new gear on a locomotive, and said that one of these gear failed and was taken out of service. The housing of the other test gear was replaced twice. When asked if the Durable gear purchased had given satisfaction, he said yes. Later he said the gear were not put in service until about September, 1929, and have not been taken down for inspection. When asked if any guarantees had been provided with the Durable gear, he said not that he knew of.

The New York hearing was concluded with the testimony from D. I. McKay, president of the Standard Coupler Company, which manufactures the Session's draft gear, and Horace Parker, president of the Bradford Corporation, both of whom submitted lists of sales of their draft gear to the railroads during each of the last five years.

Hearings at Chicago

At Chicago on Monday, E. J. Henry, western traffic manager of the Lehigh Valley, enlarged upon the testimony gathered in New York about the Lehigh Valley by testifying to conversations with R. O'Hara of Swift & Company late in 1928, and during 1929, with reference to the purchasing of draft gear, and said he was

first asked about the possibility of selling the draft gear to the Lehigh Valley for new cars and later for renewals.

S. H. Dare, traffic agent of the Atlantic Coast Line at Chicago, verified testimony given at Washington, D. C., that he had talks and correspondence about the draft gear with W. A. Mayfield of Swift & Company who said he wanted to sell the draft gear and wanted a lot of business. He was told that other lines were buying the gear and, when asked if any of these were competitors, said he understood the Southern had bought a few sets and that the Seaboard Air Line would use some whenever they were in the market.

W. C. Maxwell, vice-president of traffic, Wabash, corroborated testimony at St. Louis that R. O'Hara had talked and written to him about using the Durable draft gear. When asked if the Wabash was hauling Swift traffic, he said the tonnage amounted to about 10,000 cars a year. When asked if Mr. O'Hara had said anything about receiving orders from other roads, he said, yes, and that the Missouri Pacific had ordered 500 gear. He said that when he wrote Mr. O'Hara that the test made by the Wabash had not been satisfactory, Mr. O'Hara was not satisfied and that both he and Mr. O'Hara conferred with President Taussig and arrangements were made to have another test.

J. E. Taussig, president of the Wabash and Ann Arbor, said that the road did not buy any gear as a result of the first test because the report received from his mechanical department was unfavorable. He said Mr. O'Hara later brought in a model of an improved gear and wanted to have another test made and that he agreed to do so. He said that the report on that test showed the gear favorable for use and that 25 sets, recommended by the mechanical department, were bought. Later a second order of 50 sets were purchased.

G. T. Atkins, vice-president of traffic, Missouri-Kansas-Texas, said R. O'Hara had talked to him about selling the Durable gear to the road which, he said, handles about 4,200 cars of Swift business a year. He said he passed the subject on to his management for action and had little to do with the matter after that until October when Mr. O'Hara again asked him about the progress of a test being made by the "Katy."

C. Haile, president of the Missouri-Kansas-Texas, said the gear first came to his attention through the traffic department and that he referred the prints and photographs received to the proper department and that the general manager recommended buying 10 sets for test purposes. He said that no laboratory tests were made to his knowledge and he considered the mechanical department's report of an investigation noncommittal as to the relative merits of the gear.

J. R. Cardwell, president of the Cardwell-Westinghouse Company, was called upon to submit a list of the sales of the Cardwell gear to the railroads during the last five years, these sales amounting to 26,742 in 1925, 19,605 in 1926, 18,764 in 1927, 27,534 in 1928, and 30,718 in 1929, or a total for the five years of 123,363. He said that the Cardwell prices varied for different types of gear and that an additional charge is required in applying some of the gear to cars.

K. F. Nystrom, superintendent of the car department, Chicago, Milwaukee, St. Paul & Pacific, was called upon for a detailed report of a laboratory test of the Durable gear made by the Milwaukee road under his immediate jurisdiction early in 1929. He said the gear developed several defects in this test and that these defects were pointed out to the Mechanical Manufacturing Company. He said that 50 gear were bought by the Milwaukee after Swift & Company said they had improved the gear and, when asked if he had recommended this purchase, he said, "I think not."

On Tuesday W. E. Robertson, vice-president of W. H. Miner, Inc., was called upon to testify concerning the correctness of statements made by W. G. Beird, receiver of the Chicago & Alton, in a previous hearing that the Miner Company used reciprocity in selling draft gear to railroads. In answers to questions from the government he testified that his company did not control from 88 to 92 per cent of the gear sold in the United States and that the Miner Company is not the largest buyer of steel in the United States, second only to the Pullman Company, and that the company has not offered freight to solicit draft gear purchases from railroads. He also denied that his company was affiliated with the American Car & Foundry Company, or had interlocking directorships with certain other companies mentioned, and also testified that his company does not own or control a foundry at Buffalo making its supplies; also that his company does not control the routing of its shipments to railroads and that the salesmen of the Miner Company do not solicit draft gear purchases from traffic officers of railroads, but from the mechanical officers and purchasing agents.

J. A. Slater, manager of sales of the National Malleable Castings Co., reported the sales of the National draft gear to railroads in the last five years, showing that these sales amounted to 45,333 in 1925, 22,220 in 1926, 34,052 in 1927, 37,852 in 1928, and 59,368 in 1929, or a total for five years of 198,825.

The last witnesses called by the government were R. O'Hara, traffic manager of Swift & Company, and H. N. Beeson, president of the Mechanical Manufacturing Company. Mr. O'Hara was asked to submit files of letters of correspondence between him and W. A. Mayfield, with railway officers, concerning the solicitation of draft gear orders. These letters in general were similar to those which have already been reported in other issues of the *Railway Age* and included a letter written in January, 1929, to the general manager of the Nickel Plate, in which he said, "The reciprocity on our side is always far-reaching." When asked if he considered himself a salesman for the Mechanical Manufacturing Company he said the letters speak for themselves. When asked if he had solicited draft gear orders from railroads he said, "Yes," with the qualification that he made an effort to have railroads investigate the gear. Upon cross examination by the attorney for the respondents he said he had never utilized a pound of Swift & Company traffic to solicit the sale of Mechanical Manufacturing Company gear; also that he had never sought to sell devices on the promise of traffic from Swift & Company or its subsidiaries; also that he had never routed traffic against railroads refusing to buy from the Mechanical Manufacturing Company and had never routed traffic in favor of railroads buying the draft gear.

THE ST. LOUIS-SAN FRANCISCO, as the result of a steady campaign for the elimination of unsafe practices, and the education of its 30,000 employees in safety methods, reduced casualties among its employees 33 per cent during 1929, as compared with 1928. During 1929, 12 fatalities were reported, and 3,430 employees were injured, a total reduction in injuries since 1923 of 48.4 per cent.

Motor Carrier Bill is Passed by the House

WASHINGTON, D. C.

THE House on March 24 passed by a vote of 218 to 115 the Parker bill, H. R. 10,288, proposed to be known as the "Federal Motor Carrier Act, 1930," providing for a system of regulation by the Interstate Commerce Commission, with the assistance of joint boards of state representatives, of the transportation of persons in interstate and foreign commerce by motor carriers operating on the public highways. A motion to recommit the bill was then defeated by a vote of 236 to 104.

The prospects for the bill in the Senate are somewhat uncertain but its friends are hopeful that it may be passed at this session. The committee on interstate commerce on March 25 decided not to hold hearings on the bill and will meet next week to consider whether to make a favorable report on the House bill. Bills similar to those on which the Parker bill was based have been introduced in the Senate but its committee on interstate commerce has given little consideration to them while the House committee was working on the subject, and the Senate is so far behind with its work as the result of the long debate over the tariff bill that it would be easy for a small minority to prevent consideration of the bill by threatening to consume time on the controversial features.

As passed by the House the bill not only represents numerous and important changes from the form in which it was originally introduced, as the result of work on the bill by the committe on interstate and foreign commerce, but also includes approximately a score of amendments adopted in Committee of the Whole. The debate on the bill in the House was spread over nearly two weeks, having been begun on March 12. Most of the amendments adopted, however, were proposed by members of the committee, who were friendly to the bill, and affected principally the administrative features without altering its fundamental plan. Amendments offered by opponents were generally defeated.

Attacks on the bill were largely based on the argument that it was a "railroad bill" or that it represented the views of the railroads and the motor carriers in an effort to reduce competition, and the contention that it would provide for regulation of matters of local concern from Washington rather than by local authorities. Some of the more extreme "state rights" advocates appeared to have difficulty in understanding why it was considered necessary to resort to federal power to regulate what seemed to them to be local commerce in spite of the fact that so much of it is across state lines. Members of the committee vigorously denied the charges that the bill as reported to the House had been drafted by the original proponents of the legislation, saying that the original bill had been largely rewritten in committee, but this did not satisfy many Representatives who objected to anything that might tend to hamper the motor coach operators in competition with the railroads.

One of the most important amendments adopted was that offered by Representative Oliver, of Alabama, which provides: "If it appears at any time that motor-vehicle service in interstate or foreign commerce on any public highway is alone carried on by a railroad company, or alone by persons or corporations owning an interest in a railroad company, the commission shall give consideration to the issuance of a further certificate to a common carrier by motor vehicle on such highway, if applied for by any person or corporation not interested in a railroad company and shown to be qualified to meet the rules, requirements, and conditions fixed by the commission for such service."

The date of the "grandfather clause" was changed by an amendment proposed by Representative Culkin, of New York, so that carriers in bona fide operation on March 1, instead of January 1, as provided in the bill, may be granted a certificate without further proceedings on information furnished by questionnaire.

Much of the debate was aroused by the efforts of those who desired to leave the administration of the act as much as possible in the hands of the joint boards provided for and two amendments offered by Representative Mapes, of Michigan, were adopted to this end. The first amendment provided that the Interstate Commerce Commission shall refer questions for hearing and recommendation to joint boards when operations conducted or proposed to be conducted involve not more than three states, instead of two as provided in the bill as reported. This was adopted by a vote of 134 to 45, some members objecting to the change on the ground that it would lead to a multiplicity of joint boards. Another amendment along this line would give the commission discretion to refer questions to joint boards when more than three states are involved. An amendment proposed by Representative Hastings, of Oklahoma, to give the joint boards the power of final decision was rejected by a vote of 17 to 86, and one proposed by Representative Moore, of Virginia, to strike out the provision by which an examiner of the commission is authorized to recommend the decision of a case, was rejected by a vote of 79 to 22.

After a great deal of debate on the Mapes amendments in the effort to give the local boards an opportunity to hear more cases than they would have under the terms of the bill as reported, some efforts were made to draw a line so that minor questions could be decided by the commission at Washington without the necessity for calling together a joint board, but this effort was abandoned after the point had been made that such minor questions were just the ones which it was desired should be settled locally. The adoption of the Mapes amendments also led to a change in the original language so that decisions and recommendations of joint boards shall be by majority vote, instead of by unanimous vote.

Representative Hare, of South Carolina, in an effort to prevent railroads from obtaining control of competing motor transportation lines, offered an amendment providing that "no certificate of public convenience or necessity shall be issued, transferable, or assignable, to a competing carrier engaged in a different system of transportation, or to any persons or corporation owning stock or financially interested, directly or indirectly, in the operation of interstate transportation other than that provided for in such certificate." It was pointed out that this language was so drawn as to prevent in some cases a motor coach line from obtaining a certificate for operation in competition with a railroad line, and the amendment was finally defeated by a vote of 30 to 72.

An amendment was offered by Chairman Parker of the committee and adopted, which he said was considered unnecessary but was desired by many of the state commissioners, declaring that nothing in the act shall be construed to affect the powers of taxation of the several states or to authorize a motor carrier to do an intrastate business on the highways of any state; that it is not intended to interfere with the exclusive exer-

cise by each state of the power of regulation of intrastate commerce, and that the federal commission while acting under authority of the act shall not have any jurisdiction or authority over intrastate commerce.

An amendment offered by Representative Lea, of California, adds to the section authorizing the commission to declare a rate unjust or unreasonable a provision that "nothing in this section shall be construed to authorize the commission to fix the rate, fare, or charge."

An amendment was also adopted making provision for a waiver of action by the representative of each state from which a member of a joint board is authorized to be appointed and for the handling of such a case by the federal commission as in the case of any matter not required to be referred to a joint board.

An amendment proposed by Chairman Parker would allow a carrier furnishing a seasonal service to qualify under the "grandfather clause" if it was in bona fide operation for the calendar year 1929 during the season ordinarily covered by its operations.

Representative O'Connor, of Oklahoma, sought to obtain the passage of an amendment providing as a pre-requisite to consolidation under the terms of the act that the stocks and bonds shall not exceed the value of the properties, but this was defeated by a vote of 65 to 86 after it had been pointed out that there is no provision in the bill for regulation of security issues or valuation.

By a vote of 35 to 62 the House rejected an amendment offered by Representative Jones, of Texas, providing that it shall not be necessary to procure a certificate in order to operate an extension wholly within any state if a certificate or permit for such purpose has been issued by state authority.

New Rate Base Rule Proposed

WASHINGTON, D. C.

SENATOR Howell, of Nebraska, has introduced in the Senate a bill, S. 4005, proposing to amend section 15a of the interstate commerce act to put into effect the plan recently suggested by the Interstate Commerce Commission, in a letter to the Senate committee on interstate commerce, for computing railroad rate base valuations by the accounting method of adding or deducting subsequent changes in investment to the original valuations made by the commission at 1914 unit prices, deducting the depreciation reserve and adding an allowance for working capital. Senator Howell also proposes to change the recapture plan provided for in the present law so that half of the net income above 6 per cent may be expended for property, but not capitalized, instead of being turned over to the government. To avoid the contention that the use of a rate base which would ignore cost of reproduction would be unconstitutional, Senator Howell also proposes to allow any carrier which claims that the method would not allow it an adequate return to petition the commission for a revision of rates which would enable it to earn just compensation.

In a statement explaining his bill Senator Howell said that "it is generally agreed that railroad rate regulation under section 15a of the interstate commerce act, on the basis of valuations made under section 19a, is a failure," and that because the Supreme Court, in the O'Fallon case, has required the commission to follow a construction of the law, which makes it "unworkable," it is the clear duty of Congress to amend the law. The commission's suggestions were made in a letter commenting on a resolution which had been introduced by Senator Howell proposing to write into law an approval of the methods used by the commission in the O'Fallon case. The commission took the position that such a plan would not accomplish the purpose, as it did not propose to change the existing law, but it suggested that the law be changed to accomplish a similar result.

The bill, according to Senator Howell, provides for a complete re-writing of section 15a and for fixing rates "upon a prescribed rate base which can be accurately determined instead of upon the indefinite, fluctuating, uncertain and impractical basis of a valuation of individual railroad properties."

"The commission is then authorized and directed to prescribe rates which will provide for the carriers, as a whole in a designated rate group of territory, a fair return upon the aggregate rate base, computed from the individual rate basis of the carriers concerned. Recognizing, however, as is recognized in the present law, that rates so determined in order to be uniform will enable some of the carriers to receive a net railway operating income unreasonably in excess of a fair return, the bill provides that half of the excess income, in excess of 6 per cent upon the rate base, shall be held in trust for the United States and half in trust for the investors in the securities of the carrier. This provision for trusteeship of the excess income has been written on an entirely different principle from that utilized in the present law, which provides for the recapture of one-half of the excess income by the United States and for its use in a general railroad contingent fund in aid of the weaker railroads.

"The present bill provides that the one-half of excess income held in trust for the United States shall be expended with the approval of the Interstate Commerce Commission in providing designated extensions or additions to or betterments of the railroad property which earned the income. But such expenditures are to be charged to a separate capital account entitled "public investment account," and this public investment, together with accretions at the rate of 4 per centum will not earn return for the private investors in the railroad. In other words, as a result of this reinvestment of surplus earnings in a railroad property, the public service will be improved without capitalizing the public contribution against the public for the benefit of private investors. This provision gives to the management and to the private investors in a railroad the distinct benefit out of operations which produce surplus earnings, thereby retaining the incentives of efficient operation, but on the other hand the public served by the railroad likewise will ultimately receive substantial benefits.

"The remaining one-half of excess income is to be held in trust for investors in a reserve fund similar to that provided in the present law, a reserve fund to secure the payment of dividends, interest or rent to be accumulated until it equals 5 per cent of the rate base. Under the present law, after the 5 per cent limit is reached, the remainder of this one-half excess income can be used by the carrier for any purpose.

The proposed amendment provides that after the 5 per cent limit is reached, the remainder of the excess income shall be used for the purpose of reducing the fixed obligations of the railroad, either by retiring bonds or by their purchase in the open market. * * *

"It should be understood that the provisions for fixing rates on the basis of a certain and readily ascertainable rate base do not involve an attempt by legislation to annul the doctrine of the Supreme Court as to the final test of the validity of rates fixed by public authority.

The proposed amendment of section 15(a) provides that if any carrier shall claim that as a result of rates fixed in the manner provided, the carrier is not receiving an adequate return to provide just compensation for private property used in public service, the carrier can petition the commission for a revision of rates, which petition shall present a schedule of proposed substitute rates and its estimate of the net railway operating income to be obtained therefrom and a detailed statement showing the basis of the carrier's claim.

"It is made the duty of the commission to proceed with all possible expedition and after considering any possible revision of existing divisions of joint rates, if the commission finds the carrier is entitled to relief, it is required to make such a revision of rates as will, so far as possible, enable the carrier to earn just compensation. Thus the protection of the constitutional rights of the carriers is specifically entrusted to the commission and, of course, if the commission fails in its duty, then recourse may be had to the courts.

"But on the other hand a practical method for fixing and revising rates in general upon a stable and easily ascertained rate basis has been substituted for the methods heretofore provided which have been proved to be unworkable. The commission is not required to attempt the impossible task, first of finding an original valuation for every railroad in the country and then revaluing every individual railroad again each year, in order to obtain a basis for general rate making and a rate basis for recapturing from an individual carrier of part of its excess income.

"The revised treatment of excess income in itself should encourage a ready cooperation between the commission and the carriers in determining the amounts of such excess income instead of the hostility inevitable under the present law. * * * In order to provide for a speedy and economical termination of the interminable proceedings now required under the present law for the valuation of railroad properties, provision is made in the proposed amendment, first, that any carrier may elect to accept the application of the provisions of the new law to the period from 1920 to 1930, that is, its excess income may be determined according to the revised law and held under the trusteeship provided therein, instead of following the former provision for recapture of one-half of excess by the government.

"In case a carrier does not elect to have the new law applied to the period prior to 1930, the commission is authorized to make agreements with carriers concerning the amount of excess income to be recovered under the old law. Or if such agreements are found to be impossible, the commission is directed to proceed to enforce compliance with the original law and to recover the excess income payable to the commission thereunder, together with interest upon the same.

"In the interests of administrative efficiency and in order to balance fairly the results of good and bad years, the proposed amendment also provides for the determination of excess income in periods of two years, instead of annually as provided in the present law. * * *

"There is, in my judgment, little justification for the passage of another appropriation for the work of the Interstate Commerce Commission prior to a revision of the law necessary to determine what the commission ought to do and what methods should be utilized in order to fix just and reasonable rates promptly, practically and effectively. Congress has not yet conferred upon the commission power so to act. Congress has imposed upon the commission an impossible task, at least as the law has been interpreted by the courts."

Surgeon's Study of Fractures

"THE Fracture Problem on Railroads" is the title of an article in the Bulletin of the Association of Railway Claim Agents for March by Dr. R. C. Webb, chief surgeon of the Great Northern. Dr. Webb has found much unstandard practice in the care of injuries of this class, in dealing with casualties on railroads, and he proposes to his fellow surgeons an outline of what ought to be done to improve matters.

From the records of the Interstate Commerce Commission he finds that in the year 1928 the damage to railroad property, reported in connection with train accidents, amounted to twenty million dollars; and, incidentally, he calls attention to the need of careful study to see how many of the collisions and derailments causing this loss have been due to the negligence or inefficiency of employees whose health was not up to par.

But, comparing this twenty millions with the annual cost to the railroads of injuries to persons, he finds that in 1928 this total was about 41 millions, or more than twice the damage to cars, locomotives and roadway by collisions, derailments, etc. In train accidents and train service accidents there were 22,800 bodily injuries, of which 5300 were fractures; and, adding to these the probable number of fractures in non-train accidents (which are not classified), he estimates that there may have been 10,000 fractures, costing $1,000 apiece; or a total of $10,000,000 and he thinks this is a very low estimate. Adding the cost connected with cases where the employee is killed and the cost of amputations, he thinks that over $35,000,000 of the $41,000,000 is accounted for.

For remedy, his first suggestion is the physical examination of employees to insure getting healthy men and proper instruction to insure competent men. First-aid should be taught everywhere and this teaching should include training as to how to apply good first aid in fractures. Dr. Webb would go into detail giving special instruction in the preparation and management of splints. Local surgeons should give first-aid demonstrations annually. Motion pictures would be very useful. Stretchers should be provided liberally. The standards of hospitals to which employees are sent should be all brought up to the highest level, including suitable equipment of x-ray apparatus. More work with x-rays will be a source of expense to the railroads, but it is important to take these pictures liberally and keep them properly recorded so as never to be outwitted by a plaintiff who has made full use of this means. Every fracture should have an x-ray picture before and after treatment.

Special fracture report blanks should be provided so that there may be uniformity of records. Full statistics of fracture cases, if kept by all roads, would soon have great value for the chief surgeon in making comparisons.

The medical schools do not provide adequate instruction in the department of fractures and the interne in the hospital is not likely to gain sufficient education in a single year. Information should be broadcast so that in every case of fracture those dealing with the situation locally can decide whether to entrust treatment to a local surgeon or to send patients to specialists who are better equipped.

The fracture problem, says Dr. Webb, is assuming an important position, along with cancer and tuberculosis, and there is need of a campaign not only for the improvement of the knowledge of the profession but also for the instruction of the laity.

Informal Settlement of Rate Controversies is Urged

WASHINGTON, D. C.

THE Committee on Railroads of the Chamber of Commerce of the United States has addressed to members of the National Chamber a bulletin describing the various plans now in effect for settling railroad rate controversies through conference and co-operation between shippers and carriers instead of through formal litigation before the Interstate Commerce Commission. The information given shows that the shippers, the carriers and the commission are already engaged in an effort to settle rate controversies informally whenever possible and it is the judgment of the committee that activities along this line should be encouraged and extended.

The inquiry from which data was obtained for the bulletin was carried on under the supervision of the Committee on Railroads, of which C. W. Lonsdale, president of the Simonds-Schields Lonsdale Grain Company, Kansas City, Mo., is chairman. After discussing the various proposals which have been made the report shows that eight national organizations are now working, each in its own way, to increase the use of one or another of the methods of informal settlement that are described in the bulletin.

The committee says "there is at the present time no transportation question of greater importance than this: How can the Interstate Commerce Commission use its powers and perform its duties most effectively in the public interest? The immediate importance of this question lies in the fact that the enormous volume of work required of the commission by Congress threatens to overwhelm the commission." One answer to this question is "Reduce the amount of litigation before the commission by settling rates controversies informally whenever possible." The committee then expresses the following conclusions:

1. There has been a general expression of opinion in favor of increased use of the established methods of informal settlement of railroad rate controversies.

2. It is the judgment of the Railroad Committee that activities along this line should be encouraged and extended as being in the public interest, and as being a practical means of relieving the overburdened Interstate Commerce Commission.

3. In carrying out the purpose to encourage and extend the use of established methods of informal settlement of rate controversies, it would be desirable to

(a) secure the active cooperation of railroad and business executives in the movement to settle rate controversies informally whenever possible;

(b) enlarge the staff and broaden the work of the Bureau of Traffic of the Interstate Commerce Commission as an agency for the informal settlement of rate controversies;

(c) propose to the Department of Commerce that its study of the relation of traffic management to business prosperity be pushed to completion on a comprehensive scale;

(d) place at the service of the business men of the country the results of this study of the organization and methods of chambers of commerce and trade associations that have been successful in the informal settlement of railroad rate controversies, and continue the study with a view to securing information on which to base more definite recommendations;

(e) study the organization and methods of the Standing Rate Committees and place a record of their experience at the service of the business men of the country; and

(f) coordinate the efforts of the various agencies interested in settling railroad rate controversies wherever possible through informal conference and cooperation instead of through formal litigation.

Looking Backward

Fifty Years Ago

The Illinois Central and the Chicago & Alton have voluntarily reduced their passenger rates in Illinois from four cents per mile to three cents, in conformity with the law of the state which has not been enforced during the past period of depression in the railway business.—*Railway Age,* April 1, 1880.

The Miami Valley [now part of the Pennsylvania] was sold at Lebanon, Ohio, on March 20 under foreclosure of mortgage, and was purchased for $61,000 for interests in Cincinnati, Ohio. The road is nearly all graded from Cincinnati to Waynesville, about 41 miles, but has no track laid Its chief value is in the entrance into Cincinnati, which is included as a part of the property.—*Railroad Gazette,* March 26, 1880.

Net earnings of the Chicago, Burlington & Quincy were 16.25 per cent greater in 1879 than in 1878, while gross earnings per mile suffered a slight decrease. An examination of the detailed account of expenses shows that in comparison with 1878 the following items decreased in 1879:

Track maintenance, 13 per cent; bridge maintenance, 26 per cent; fence maintenance, 12 per cent; building maintenance, 40 per cent; locomotive repairs, slightly less. Car repairs increased about 6 per cent.—*Railroad Gazette,* March 26, 1880.

Twenty-Five Years Ago

D. J. Brumley, division engineer of the Indianapolis Southern, has been appointed principal assistant engineer of the Illinois Central.—*Railroad Gazette,* March 31, 1905.

The Territory of Oklahoma has adopted a law which is in advance of those of any state or territory in its unreasonableness and impracticability. It requires railways to pay shippers one dollar for each day or fraction thereof it may delay to furnish cars over and beyond four days from the date of application. Freight offered must be received and immediately forwarded at a rate of not less than 60 miles per day of 24 hours, with an allowance of 24 hours at points of transfer between two railways.—*Railway and Engineering Review,* April 1, 1905.

Ten Years Ago

The first rate case under the new transportation act was initiated at Washington at a hearing before the Interstate Commerce Commission on March 22, and three days were devoted by the Commission to hearing the views of representatives of the railroad companies, shippers, state commissioners and organized employees as to the methods to be used in adjusting rates to produce the fair return required by the law.—*Railway Age,* March 26, 1920.

The list made public by the Interstate Commerce Commission on March 20 of the 864 transportation companies that have filed acceptance of the provisions of the transportation act which entitles them to a six-months' guaranty by the government, shows that 41 Class I roads and large switching and terminal companies have decided to take their chances without a guaranty, hoping to earn more than the standard return.—*Railway Age,* March 29, 1920.

Charles E. Denney, formerly assistant general manager of the New York, Chicago & St. Louis, has been elected vice-president and general manager of that road. A. E. Wallace has been appointed manager of the Chicago region of the Erie. J. Cannon has been appointed assistant general manager of the Missouri Pacific. Loren F. Vosburgh has been appointed traffic manager of the New York Central. Frank H. Hardin has been appointed chief engineer of motive power and rolling stock of the New York Central.—*Railway Age,* March 26, 1920.

Communications and Books

An Error

St. Louis, Mo.

To the Editor:

On page 564 of the *Railway Age* of March 1 you referred in your article reporting the hearing held on reciprocal buying, to what purports to be my testimony before the Federal Trade Commission in St. Louis. The statements with reference to my testimony are incorrect and misleading, for the only part that I had in the hearing was to identify certain papers that were taken fom the files of the company. When I was asked if Mr. Mayfield or Mr. O'Hara had ever talked to me about purchases I testified that they had not. I am bringing this matter to your attention as I do not believe that it is your intention to state facts incorrectly or to create an erroneous impression.

J. W. Newell,
Vice-President, Wabash Railway Company.

[Mr. Newell is correct in his statement relative to his testimony. We were in error in combining reference to his testimony with that of other witnesses at the hearing, in an effort to conserve space.—Editor.]

New Book

Timber Design and Construction, by Henry S. J. Jacoby, professor of bridge engineering, Cornell University, and Roland P. Davis, professor of structural and hydraulic engineering, West Virginia University. Second edition. 334 pages, illustrated, 6 in. by 9 in. Bound in cloth. Published by John Wiley & Sons, Inc., New York. Price $4.50.

"Structural Details," by Henry S. Jacoby, published in 1909, filled a long-felt need for a comprehensive treatise on the design and framing of engineering structures built of wood and has since remained the authoritative text in this field. Its appearance was virtually coincident with the initiation of an intensive program of research into the properties of wood under the leadership of the United States Forest Products Laboratory and it has now been revised and partly rewritten by the junior author, Roland P. Davis, to incorporate the results of these investigations.

The arrangement of the second edition is the same as the first, embracing chapters dealing with the properties of fastenings, the mechanics of joints, the properties of beams and columns, the analysis of trusses, and examples of framing in practice. To these has been added a chapter covering current grading practice and up-to-date data on the strength and other properties of wood. The frequent appearance of new references indicates a rather thorough revision, but there has been little change in illustrations. Although some mention is made of wood preservation, the subject of framing before treatment is dismissed in a single sentence and some of the references to preservatives and treatment do not reflect current knowledge in this field.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Centenary History of the Liverpool & Manchester Railway, by C. F. Dendy Marshall. Of particular interest to persons interested in social revolutions, early locomotives and their builders, bibliography of railways, economics of operation, and early china, tablecloths, drapery material, prints, glassware, textile of various sorts, and medals "inspired" by the advent of this railway. A transcript of Rastrick's Rainhill notebook is printed as an appendix. Beautifully illustrated. 192 p. Pub. by Locomotive Publishing Company, Ltd., London, England, and Spon and Chamberlain, New York City. 30 shillings.

How Great Cities Are Fed, by W. P. Hedden. "Factors influencing choice of rail, water, or motor transport" in chapter 1. The freight-rate structure is discussed in chapter 2 "Watersheds, Milksheds, and Foodsheds." "The Revolutionary Activities of the Refrigerator Car" are related in chapter 3, while "The Geography of Food Terminals and Food Industries" is taken up in chapter 4. Transportation and terminal handling of food, middle-men, interdependence of terminal facilities and trade organization, terminal handling costs, public control of the food supply and control of transportation and terminal charges, are among the other phases discussed. 302 p. Pub. by D. C. Heath & Co., New York City. $2.80.

Report of the Special Committee on Competition Between Railways and Waterways Submitted to the Advisory and Technical Committee for Communications and Transit. Official No. C. 127. M.43.1929.VIII. Includes extracts from reports of Walker D. Hines on the Rhine and the Danube, statistical inquiry into rail and river traffic, and synopses and reports on European railroad and river traffic by G. Frumkin, Dr. W. Speiss, and various railway administrations. An addendum contains an extract from the records of the meeting of the Reich railways council, July 19, 1927, and "How to arrive at co-operation between railways and waterways which shall be satisfactory from the national economic point of view," by Dr. Speiss. 197 p. Pub. by League of Nations, Geneva, Switzerland. Available in United States from World Peace Foundation, Boston, Mass. $1.50.

The Story of the Atlantic Coast Line 1830-1930. "Constructed as a community enterprise to attract trade to Petersburg Railroad was the earliest of the more than 100 short, disconnected, railroads that were later brought together into the Atlantic Coast Line Railroad. . . ." p. 1. An attractive and valuable addition to the historical pamphlets relating to American railroads. "How the System got its name" p. 10-11. "The Period of Consolidation" p. 12-15. 20 p. Pub. by Atlantic Coast Line Railroad Company, Wilmington, N. C. *Apply.*

Periodical Articles

Aerial Surveying As Applied to Engineering Problems, by A. M. Narraway. "Aerial surveying may be defined as being the practical application of aircraft and of the aerial photograph to the investigation and development of the country's natural resources" p. 171. "In railway locations the aerial engineer does not profess to be able to take the place of a locating party, but he is able to select the most feasible route or routes from the photographs." p. 177. Engineering Journal [Canada], March, 1930, p. 171-178.

Gross and Net Earnings for United States Railroads for the Calendar Year 1929. A review of economic conditions as they affected railroad earnings, including a valuable summary of the weather as an influence on traffic in 1929 and preceding years back to 1920, on pages 1538-1540. Commercial and Financial Chronicle, March 8, 1930, p. 1534-1542.

Novel Passenger Elevators Installed in Brazil, by J. Windsor Ives. "In Bahia....a large transportation company has recently inaugurated the new Lacerda elevators, which were constructed to solve the unique problem of transporting the thousands of people who daily commute between the upper and lower levels of the city . . . . The tower was formally opened to the public on the evening of January 1. On the same day between 8 p.m. and midnight, 10,700 people were carried. The new tower is flood-lighted at night and can be seen many miles at sea." Commerce Reports, March 24, 1930, p. 793.

Real Estate Problems, edited by Karl Scholz. Includes "The Economic Importance of Real Estate Classification" by Albert G. Hinman, p. 7-11, "The Indestructible Properties of Land" by W. H. Voskuil, p. 50-55, "The Distinction Between Value and Valuation and Its Application to Real Estate" by Weldon Hoot, p. 61-66, and "The Inter-dependence of Land and Public Utilities" p. 106-114. Annals of the American Academy of Political and Social Science, March 1930.

Odds and Ends of Railroading

It's About Time

It may be of interest to traffic men to learn that the Union Pacific has been granted permission to cancel rates on beer, from Hastings, Neb., to Fairbury.

Champion Snake-Catcher

Ira Collins, section foreman for the Atchison, Topeka & Santa Fe at Salome, Ariz., claims the railway snake-catching championship. He and his gang captured alive, a rattlesnake 5 ft. 6 in. in length, having 13 rattles, and equipped with enough poison to kill an army.

Flying Conductors

F. S. Wetzel, J. H. Conley, E. T. Gaston and W. H. Webb, veteran conductors of the Pennsylvania, regularly assigned to The Airway Limited, were given the thrill of their lives recently in the form of an air-rail tour to Los Angeles, over the route followed by their passengers.

Reverse Directions

PHILADELPHIA, PA.

TO THE EDITOR:

With reference to the recent item regarding the Chicago, Milwaukee, St. Paul & Pacific, and the Northern Pacific "reversing directions" out in Montana, how about the Chicago-bound trains of the Baltimore & Ohio and of the Pennsylvania, between Washington and Baltimore?

H. B. CRANTFORD,
Railway Division, Electric Storage Battery Company.

Privacy for Ladies

The South African railways have recently inaugurated. a new service for feminine passengers. Upon receipt of a deposit of two shillings, sixpence, the guards will supply such passengers with a device consisting of a short, nickel-plated chain, with a stamped disc in the center; the ends of the chain engage in slots, one end fitting on the sliding door of the compartment, the other on the frame of the car, thus preventing the door from being opened more than about an inch. When the chain is returned at the end of the journey, the money is refunded.

Interesting Track

Recently, the Boston & Maine took up a piece of track that was laid inside a paint shop at Concord, N. H., about 1869. It consisted of 3½ in. rails, laid on stone ties, with the spikes leaded in, and it was necessary to use an acetylene torch to cut the spikes before the rails could be removed. A straight fish bar was used on the joints, with a three-inch, T-head iron bolt. No loose bolts were found in the 350 ft. of track torn up, and the track supervisor reported that it was still in good line and surface, although no repairs had been made to it in at least 26 years.

Saves Commuters' Tickets

Maybe it was the color of the stubs that intrigued him, or the "small boy" pleasure of playing conductor, but at any rate Joseph de Mayorga, Chicago, has made a hobby of collecting Chicago & North Western monthly tickets between Chicago and Des Plaines since 1899 and has a stack of them now that rivals the proudest possession of the inveterate stamp collector. There's no explanation of how the hobby started, Mr. de Mayorga says, except that he neglected to throw away the first few stubs when he started commuting between the northwest suburb and the loop. After that, keeping the tickets filed away and watching the stack grow bigger with the months became a fascinating game. More than 30 years of collecting has netted him 363 ticket stubs varying in shape, size and general make-up as much as Parisian designer's seasonal models. There's the old time monthly with the year date plastered all over the front, and the modern conservative ticket designed to make the rides predominate, a veritable history of progress in ticket printing and design. Mr. de Mayorga's collecting hasn't been without its trials. Conductors' habits of keeping the ticket, on the last train the last day of the month, have caused the collector mild arguments more than once. But with the passing of years, every conductor on the Wisconsin division has heard of Mayorga's hobby and works with him to keep the string unbroken.

Once in a Million Times

On October 19, 1929, C. R. Somerville, of Underhill, Man., loaded C.N. 309417 with grain, for shipment to Port Arthur, Ont., via the Canadian National. He did not go near the siding again until November 16, when he discovered the same car standing there. Believing his car had not been shipped he complained to the agent, who discovered that the car had been moved to the lake-head on October 19, had been unloaded there on October 29, returned to Winnipeg and loaded there with merchandise for Underhill on November 15. An expert in the transportation department of the Canadian National with a flair for figures has calculated that the chance of such a happening occurring is 1 in 600,000.

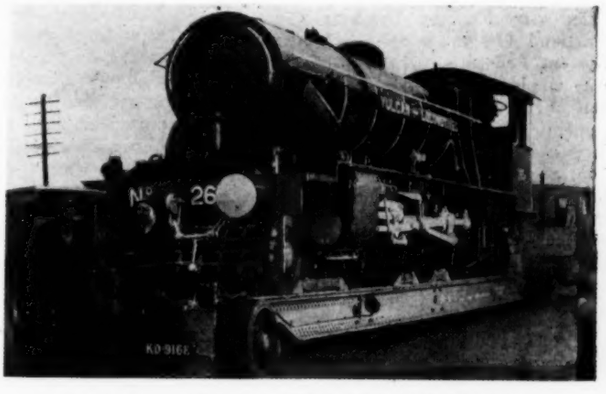
Progress in Persia

Since the dim beginnings of history, camels have plodded along the 1,000-mile caravan route across Persia, between Khur Musa on the Persian gulf and the cities on the Caspian sea. Local tradition has it that the Three Wise Men of the East used this route in following the Star to Bethlehem. The caravan trail has resounded, too, to the tramp of men and beasts bound on less peaceful missions. Accounted in the trappings of war, the armies of Alexander, of Xerxes, of Cyrus and of Caesar, have suffered in the heat of these deserts, which have known, as well, in more recent years, the red coats of the British.

But times and customs change, even in the Orient, where progress finds itself blocked at every turn. The new Shah of Persia is of a modern turn of mind, and, just a month or so ago, he presided at the opening of the first 90-mile section of a railway that is to border the ancient caravan trail. The only other railways in Persia are a six-mile line near Teheran, the capital, and a branch of the Trans-Caspian Railway, which extends a few miles across the border into Tabriz.

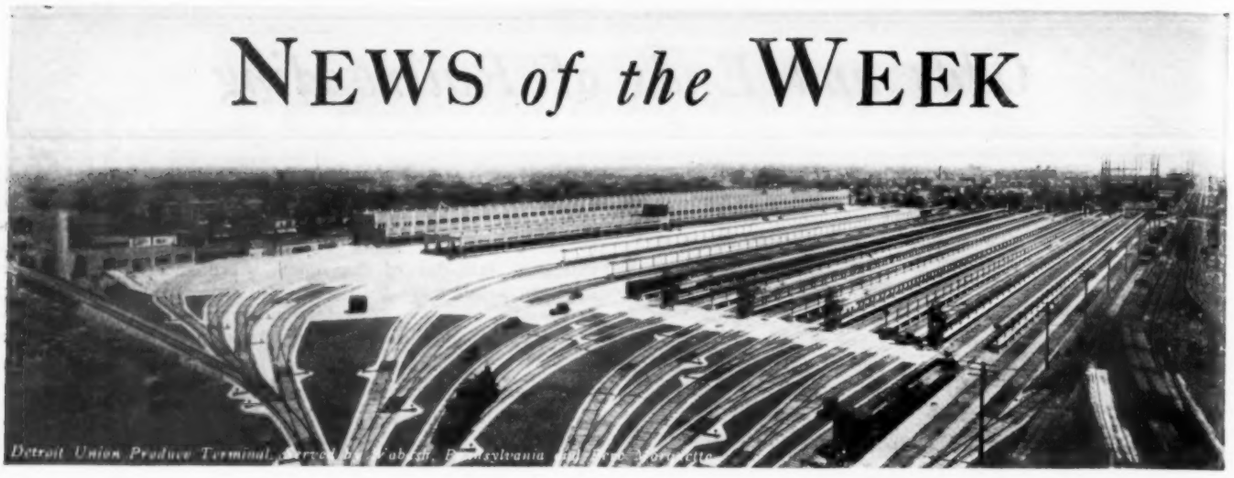
The Height of Something or Other

Motor trucks frequently travel by rail, but it is rather a rare occurrence for a locomotive to travel by truck. Yet this happened in England recently, when on a specially built truck, as shown in the illustration, a 62-ton locomotive was transported from the builder's plant to the wharves in Liverpool.



The Locomotive that Went for a Motor Ride

NEWS *of the* WEEK



Detroit Union Produce Terminal, served by the Wabash, Pennsylvania and Detroit Terminal

THE PACIFIC RAILWAY CLUB will hold its next meeting in Sacramento, Cal., on Saturday evening, April 12.

THE RAILWAY CLUB OF GREENVILLE (PA.) will hold its next meeting on Tuesday evening, April 15, at Zion's Reformed church. The election of officers will be held at this meeting.

THE INTERSTATE COMMERCE COMMISSION has adopted an addition to its rules of practice covering the information to be furnished in connection with the filing of applications for certificates, etc., under the inland waterways act.

THE WESTERN RAILWAY CLUB will hold its next meeting at the Hotel Sherman, Chicago, on Monday evening, April 21. R. V. Wright, managing editor of the *Railway Age* will speak on "This Machine Age—Where Is It Leading Us?"

THE ST. LOUIS RAILWAY CLUB will hold its next meeting at the Statler Hotel, St. Louis, on Friday evening, April 11. The speaker will be P. F. Schowengerdt, director of agricultural development of the Wabash. The annual election of officers will take place at this meeting.

THE CAR FOREMEN'S ASSOCIATION OF ST. LOUIS will hold its next meeting at the American Hotel Annex, St. Louis, on Tuesday evening, April 1. E. E. Fair, president of the Wabash Railway Enginemen's School of Instruction will speak on airbrakes, the lecture to be illustrated by motion pictures.

IN THE FEDERAL DISTRICT COURT at Portland, Oregon, a suit has been filed by System Federation No. 109 of the Railway employees' department of the American Federation of Labor against the Spokane, Portland & Seattle, the Oregon Trunk and the Oregon Electric asking for a permanent injunction restraining these roads from "influencing" employees in respect to the right of self-organization, and enjoining the railways from discharging members of the federation because of their membership in that organization.

American Welding Society

The annual meeting of the American Welding Society will be held on April 23, 24 and 25 at 29 West Thirty-Ninth street, New York. The technical session on the first day will be devoted to papers on the Distribution of Stresses in Fillet Welds and Investigation of Beams Welded to Columns.

An architectural session is being arranged for Thursday, April 24, when papers covering the subject of welding from the viewpoint of the architect and builder will be presented. The dinner in the evening will be a stag affair.

An All-Welded Barge, The Needs of the Metropolitan District for Instruction in Welding, and the Welding of Tube Turns will be the subjects discussed Friday morning, April 25. Meetings of the Structural Steel Welding Committee and the American Bureau of Welding will be held on Friday afternoon.

P.R.R. Train-Connection Motor Coach Tariff Hearing

Hearings on the tariff filed by the Pennsylvania to provide a train-connection motor coach service for parties of 25 or more persons traveling over its line to or from New York City and Newark, N. J., were held in New York on March 26.

Testimony in opposition to the tariff, which has been suspended until September 2 by the Interstate Commerce Commission, was presented by the New York Central, the Erie, and the Lackawanna. While the present train-connection motor coach service provided at New York by the Baltimore & Ohio was not under investigation, the Pennsylvania nevertheless urged the competition of this service as a reason for permitting its tariff to become effective.

Following the taking of testimony, the Pennsylvania and the protesting roads were given until April 25 to file briefs; oral arguments will be held at a date to be set following the submission of these briefs.

Equipment on Order

The railroads on March 1 had 31,239 freight cars on order, according to reports compiled by the Car Service Division of the American Railway Association. This was the largest number that has been on order on any March 1 since 1926, except last year. The number of new freight cars installed in service during the first two months of this year totaled 18,217, compared with 3,566 for the same period in 1929.

The railroads had 450 locomotives on order on March 1—more than on any similar date since 1924. On March 1 last year the total was 291. Locomotives placed in service in the first two months this year totaled 113 compared with 80 in the same period in 1929. Of the freight cars on order on March 1, 1930, reports showed that 19,094 were box cars, an increase of 2,105 compared with last year; coal cars, 9,437, a reduction of 5,797. Refrigerator cars on order totaled 892; flat cars 1,466; stock cars 250 and other miscellaneous freight cars 100.

B. C. Government Line Improves Showing

The Pacific Great Eastern deficit has been reduced to the lowest in its history. Premier S. F. Tolmie of British Columbia, president of the railway company, filing the annual report in the British Columbia Legislature, showed the operating deficit for 1929 to be $55,844.

The great improvement achieved in the affairs of the railway in the last twelve months, is indicated by the fact that the operating deficit for 1928 was $132,111. A few years ago, the deficit reached $300,000, and in 1926 was $274,971. The report for 1929, the most satisfactory account of railway operations ever received by the Legislature, shows revenues of $561,274, as against $531,331 in 1928. In the same time operating costs were cut from $633,441 in 1928, to $617,119 in 1929.

For the last five successive months of 1929 the railway produced an operating surplus which it had never done before.

Up to the end of 1929 the P.G.E. had cost the people of B.C. $61,458,034 which sum includes the outstanding debt and the losses paid year by year out of provincial revenues. In 1929 the total loss on the line made up for the most part by interest costs was $3,306,567 of which interest represented $2,707,328.

The operating expenses of the line last year included $375,844 for replacements and renewals and assistance to West Vancouver in return for loss of railway service totaling $80,000.

Reports that maintenance charges on the

line have been paid out of capital account were denied by Premier Tolmie, Minister of Railways, and Col. Nelson Spencer, Conservative for Vancouver, a director of the railway company. All money spent on operations came out of the operating account and capital expenditures out of capital account, Col. Spencer declared.

The P.G.E. is owned and operated by the government of British Columbia.

Torpedoes and Fusees

It is impracticable to prescribe the exact number of torpedoes and fusees which should be kept on hand; much depends upon what experience in the past has demonstrated that you may require. Generally speaking, more are ordered than are needed for the time being, and this results in loss, as they soon become unserviceable. Local freights need more than other freights. Branch crews do not require as many as main line crews. Many fusees and torpedoes which have been on hand for some time are found to be in very bad condition. Place waste about them and they will not be rendered unfit for service so soon. Passenger signal-cases, as well as torpedoes and fusees on engines, must be checked up by officers at least four times a year and much oftener by employees. Do not place wet flags with fusees or allow fusees to become damp from other causes. If you have never lighted a fusee, do so at once. Do not wait until an emergency arises, then discover you do not know how. If the cap is missing, try lighting by placing end against fire box door, scraping on rail, etc. Hold the end to be lighted away from you. Know that the fusee is burning well before throwing it on the ground.—From a lecture by Harry W. Forman, assistant to general manager, Western Pacific.

Chicago-New York via Rail-Motor Coach, $28.48

The Pennsylvania announces that its arrangement with the Greyhound Lines for carrying passengers between New York and Philadelphia on the east and Chicago and St. Louis on the west, by motor coach in the day time and railroad sleeping cars at night, will go into effect on April 1. The schedules given below show the information concerning arrivals and departures as given in the railroad company's announcement. Schedules A and Y show the New York trips and schedules B and Z those beginning and terminating in Philadelphia. The times of departure and arrival of motor coaches are indicated by "GL" and those of railroad trains by "PRR."

The cost of the all-rail journey between New York and Chicago, including upper berth accommodations in sleeping cars is $39.90 and of that between Philadelphia and Chicago, $36.06.

New Haven Statement on Providence, R. I. Port Development

The board of directors of the New York, New Haven & Hartford, at a meeting in New York on March 25, made public the report concerning the port of Providence. The statement was prepared in accordance with an understanding reached at a recent meeting of representatives of the railroad with a committee of the Providence Chamber of Commerce and is part of the present agitation for the development of export commerce through the port of Providence, most of which agitation has taken the form of proposals to complete the long-abandoned Southern New England Railroad from Palmer, Mass., to Providence and thereby provide a connection over which it is hoped Canadian export traffic would be routed.

While the Southern New England is not mentioned by name, the report states that the idea that being served by a single railroad is a detriment to the development of the port of Providence is believed to be a mistaken one. It continues to point out that many local ports are now being served by two or more railroads, yet this has not aided these ports in their efforts to attract to their harbors the foreign commerce now concentrated at the larger seacoast cities.

The New Haven expresses itself as being fully prepared and equipped to render prompt and efficient service and to co-operate in every way that it can in developing the port of Providence. A further study of port requirements and traffic possibilities is suggested and the railroad expresses its willingness to furnish a committee of traffic and operating representatives to work with the Providence port organization to find a satisfactory solution of the problem of the proper development of the port. In connection with the development of Providence as an outlet for Canadian export traffic, the New Haven statement points out that Portland, Me., the nearest seaport to Montreal, is served directly by the Canadian National. Yet despite this fact, Portland during recent years, has lost practically all of its export grain traffic to Canadian ports. The report, in this connection suggests development of a New Haven-New York, Ontario & Western route for grain moving through the Welland Canal on which improvements, expected to be completed this year, will permit grain-carrying lake vessels to navigate through to Oswego, N. Y., on Lake Ontario. As Oswego is served by the New York, Ontario & Western, controlled by the New Haven, the report continues, a through route under a common control, with adequate capacity will be available to move lake grain from Oswego to Providence, a distance of 485 miles.

The rate on export grain from Oswego will, it is said, for the first time, allow Providence to compete on an equal basis with Philadelphia and Baltimore for the export grain traffic from the Great Lakes.

TIME TABLE, NEW YORK AND CHICAGO, MOTOR COACH AND RAILROAD

	Westbound—Read Down		Eastbound—Read Up	
	A	B	Y	Z
New York	12:15 p.m. GL	.....	7:10 p.m. GL	.....
Philadelphia	.....	8 a.m. GL	.....	3:10 p.m. GL
Harrisburg	8:15 p.m. GL	.....	10:35 a.m. GL	10:30 a.m. GL
Harrisburg	10:32 p.m. PRR	.....	9:25 a.m. PRR	9:25 a.m. PRR
Pittsburgh	.....	11:37 p.m. PRR	.....	.....
Lima	10:32 a.m. PRR	.....	9:24 p.m. PRR	9:24 p.m. PRR
Lima	11:05 a.m. GL	.....	7:21 p.m. GL	7:21 p.m. GL
Chicago	6:30 p.m. GL	9 a.m. PRR	9:30 a.m. GL	9:30 a.m. GL
Time, through	31 h. 15 min.	26 hrs.	.....	28 h. 40 min.
Fare, including upper berth at night	$32.18	$28.48	.....	$30.88

P. R. R. Buys Land in Cleveland and Philadelphia

The Pennsylvania has recently purchased large tracts of land in Cleveland, Ohio, and in Philadelphia, Pa., for future use in transportation and terminal developments which the company is planning for both of those cities.

The Cleveland purchase includes the property of the Lakeside Hospital Association and adjoins a parcel of land on East Ninth street and Lakeside avenue which was recently acquired by the railroad. The Lakeside Hospital site contains 4.81 acres with a frontage of 500 ft. and runs back 430 ft. to the Pennsylvania tracks, while the adjoining tract owned by the road has a frontage of 641 ft. along Lakeside avenue to the corner of East Ninth street and contains 6.65 acres. The combined properties, totaling 11.46 acres, give the Pennsylvania almost unbroken possession of a large piece of land between Lakeside avenue on the south and the company's tracks on the north. The practicability of this location as a site for a passenger or lakeside freight terminal has given rise to rumors that it is to be used for one of those purposes, but no official announcement of the reasons for the purchases has been made, beyond the fact that the land is to be used for future transportation developments.

The Philadelphia land includes a number of small tracts along the west side of the Schuylkill river between South street and Fairmount Park. It has been obtained to complete the Pennsylvania's holdings in this district and to fill out the company's real estate requirements for its new Philadelphia passenger station and terminal development program.

No official figures as to the prices paid are available.

Blizzard in Chicago

A blizzard on March 25 and 26 slowed up train movements in Chicago terminals much the same as the one which occurred on December 18 and 19 but not to the same extent. During the first 39 hours of the storm, which began on the morning of March 25, a total of 18-6/10 in. of snow fell while the wind velocity was about 30 miles per hour, with frequent gusts at 50 miles per hour. In the storm of December 18 a total of 14-8/10 in. of snow fell in 40 hours, with a wind of less velocity.

While the December storm occurred at a temperature below freezing and precipitated dry snow which drifted and

(*Continued on page 784*)

Operating Statistics of Large Steam Railways—Selected Items for January, 1930, Comp

Region, road and year	Average miles of road operated	Locomotive-miles: Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross, Excluding locomotives and tenders	Ton-miles (thousands): Net, Revenue and non-revenue	Average number of locomotives on line: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:												
Boston & Albany	1930 407	200,356	213,857	22,125	4,679	64.8	253,200	93,250	102	24	18.8	30
	1929 407	201,650	213,327	21,668	4,744	67.6	244,462	91,377	104	19	15.6	32
Boston & Maine	1930 2,066	357,289	422,199	53,615	11,821	68.9	630,329	243,541	258	53	17.0	69
	1929 2,070	387,840	465,891	59,499	12,252	70.8	619,427	240,367	285	42	12.9	70
N. Y., New H. & Hart.	1930 2,106	435,379	503,356	30,101	14,243	62.6	794,854	301,224	287	57	16.6	51
	1929 2,102	511,796	569,361	34,594	14,801	67.9	782,384	312,326	287	73	20.2	30
Great Lakes Region:												
Delaware & Hudson	1930 875	327,155	434,003	49,731	9,749	62.2	620,016	294,392	235	35	12.8	82
	1929 875	323,851	421,505	39,307	9,454	64.3	583,224	278,153	235	37	13.7	82
Del., Lack. & Western	1930 998	484,805	537,473	61,496	15,479	64.9	908,619	378,802	222	56	20.2	23
	1929 998	559,348	629,463	73,226	17,247	66.8	991,653	425,438	235	52	18.0	10
Erie (inc. Chi & Erie)	1930 2,316	829,293	891,285	66,303	34,429	63.4	2,091,258	871,288	414	90	17.8	92
	1929 2,316	922,259	998,773	80,203	38,326	64.0	2,326,225	1,001,977	413	100	19.4	46
Grand Trunk Western	1930 1,020	276,863	280,778	4,871	8,013	66.0	440,235	164,546	88	31	26.0	32
	1929 992	337,347	338,992	2,017	9,344	66.4	506,882	186,469	106	27	20.3	10
Lehigh Valley	1930 1,343	508,582	556,064	62,101	15,139	65.3	905,679	394,422	253	80	24.1	23
	1929 1,343	553,845	606,009	66,094	16,426	65.0	974,812	423,974	322	83	20.4	36
Michigan Central	1930 1,820	526,439	528,246	19,267	17,078	60.7	981,729	343,909	192	44	18.7	32
	1929 1,822	586,021	596,689	18,846	19,284	61.3	1,087,419	383,081	209	45	17.8	33
New York Central	1930 6,468	2,093,133	2,304,989	174,270	73,058	60.2	4,596,589	1,970,915	1,013	310	23.5	225
	1929 6,467	2,159,922	2,443,934	166,927	76,859	61.1	4,786,558	2,054,865	954	386	28.8	147
New York, Chi. & St. L.	1930 1,665	647,294	654,973	5,856	18,859	60.6	1,120,993	423,297	207	50	19.5	31
	1929 1,665	679,653	687,955	7,665	21,182	62.2	1,216,198	463,776	223	56	20.0	48
Pere Marquette	1930 2,178	414,036	417,473	2,940	9,609	62.6	590,296	250,719	174	25	12.3	30
	1929 2,178	423,055	426,344	4,241	10,025	62.1	611,163	265,569	180	29	14.0	21
Pitts. & Lake Erie	1930 231	123,940	125,856	1,327	4,026	59.4	321,158	176,482	53	13	19.3	15
	1929 231	133,341	135,832	1,994	4,656	59.0	370,668	204,948	54	12	17.6	12
Wabash	1930 2,497	805,351	851,998	15,763	22,282	63.0	1,316,139	500,947	291	71	19.7	22
	1929 2,497	890,019	930,489	12,783	24,865	64.1	1,418,514	537,338	292	72	19.7	25
Central Eastern Region:												
Baltimore & Ohio	1930 5,541	1,774,216	2,059,829	243,984	51,027	60.6	3,473,717	1,604,049	1,027	197	16.1	178
	1929 5,536	2,004,924	2,286,271	276,136	55,811	60.8	3,786,585	1,779,618	991	240	19.5	105
Central of New Jersey	1930 693	266,367	288,879	43,022	7,299	55.8	518,177	243,130	163	39	19.2	14
	1929 691	272,010	292,589	44,072	7,500	57.0	518,700	244,372	183	26	12.3	21
Chicago & Eastern Ill.	1930 946	256,425	257,994	3,150	6,074	63.7	390,948	179,639	89	64	41.6	18
	1929 946	281,281	283,246	3,726	6,885	63.2	444,306	208,879	92	67	41.9	13
Clev., Cin., Chi. & St. L.	1930 2,366	801,235	830,508	19,463	22,837	59.2	1,539,334	708,092	289	127	30.5	13
	1929 2,371	823,655	855,232	21,520	24,116	60.4	1,604,362	747,524	304	125	29.2	9
Elgin, Joliet & Eastern	1930 453	143,161	153,410	7,306	3,514	60.2	277,139	142,052	75	18	18.9	...
	1929 452	153,642	163,000	8,305	3,860	62.6	295,262	154,108	84	8	9.1	...
Long Island	1930 400	42,527	46,122	14,168	476	53.6	32,461	12,444	46	9	15.9	3
	1929 400	41,016	45,326	15,730	558	55.1	26,251	13,886	49	8	14.7	1
Pennsylvania System	1930 10,763	3,746,617	4,309,165	421,809	123,353	61.6	8,314,088	3,795,631	2,396	356	12.9	587
	1929 10,738	3,956,694	4,581,740	428,165	129,628	63.2	8,617,936	4,018,365	2,723	327	10.7	684
Reading	1930 1,452	660,525	717,004	53,960	16,656	58.4	1,217,077	553,788	340	62	15.3	43
	1929 1,453	692,977	760,351	52,661	17,528	58.4	1,250,851	618,347	337	76	18.4	24
Pocahontas Region:												
Chesapeake & Ohio	1930 2,735	1,168,290	1,249,933	51,492	40,260	56.2	3,340,776	1,824,585	505	90	15.1	51
	1929 2,730	1,170,825	1,261,443	50,580	38,801	56.6	3,151,786	1,710,371	530	97	15.5	47
Norfolk & Western	1930 2,230	899,430	1,029,153	55,816	32,301	58.6	2,796,704	1,517,031	442	48	9.9	78
	1929 2,230	889,102	1,040,390	39,735	32,124	59.7	2,713,466	1,484,361	487	56	10.3	116
Southern Region:												
Atlantic Coast Line	1930 5,155	684,427	686,929	9,792	17,167	60.6	953,388	335,581	403	57	12.4	94
	1929 5,143	698,494	701,846	8,216	18,036	62.2	979,741	361,327	437	49	10.0	89
Central of Georgia	1930 1,900	248,815	251,087	3,751	6,079	67.8	334,745	133,803	126	25	16.7	5
	1929 1,898	252,075	253,783	3,745	6,251	70.3	332,211	134,797	132	19	12.7	12
Ill. Cent. (inc. Y. & M. V.)	1930 6,694	1,920,748	1,931,967	31,671	47,097	60.1	3,201,929	1,350,578	700	129	15.6	11
	1929 6,713	2,107,661	2,119,304	33,448	53,539	62.1	3,568,537	1,569,172	737	115	13.5	15
Louisville & Nashville	1930 5,247	1,624,568	1,738,195	52,571	33,961	58.9	2,388,822	1,155,270	543	145	21.0	28
	1929 5,247	1,679,323	1,758,528	59,727	34,864	59.7	2,415,540	1,174,364	606	113	15.7	51
Seaboard Air Line	1930 4,483	583,366	593,985	8,502	14,615	61.0	864,629	315,059	268	36	11.8	9
	1929 4,475	586,571	604,040	7,409	14,743	62.0	853,259	310,152	250	64	20.4	...
Southern	1930 6,676	1,420,414	1,453,288	30,118	33,915	63.5	1,923,483	772,316	809	154	16.0	161
	1929 6,679	1,451,561	1,482,990	33,109	35,441	64.9	1,973,516	795,743	833	131	13.6	112
Northwestern Region:												
Chi. & North Western	1930 8,459	1,376,961	1,454,339	30,238	32,510	62.6	1,939,766	765,886	773	83	9.7	87
	1929 8,467	1,435,402	1,536,941	29,116	31,787	63.5	1,915,063	745,778	766	91	10.6	103
Chi., Milw., St. P. & Pac.	1930 11,244	1,635,147	1,772,785	92,699	41,564	62.5	2,532,474	1,046,566	807	137	14.5	219
	1929 11,248	1,699,835	1,869,402	108,362	44,266	65.7	2,591,478	1,110,199	805	132	14.1	172
Chi., St. P., Minn. & Om.	1930 1,724	349,632	380,772	18,474	6,551	61.5	400,064	168,253	143	31	17.8	16
	1929 1,724	339,057	367,416	17,217	6,125	63.5	357,590	149,063	158	21	11.7	21
Great Northern	1930 8,339	793,173	820,200	49,158	21,847	70.5	1,250,171	573,835	475	141	22.8	69
	1929 8,374	802,563	828,301	54,560	23,955	71.1	1,365,351	642,526	491	143	22.6	86
Minn., St. P. & S. St. M.	1930 4,388	436,027	449,929	4,806	10,613	66.6	577,941	244,512	191	43	18.4	29
	1929 4,357	466,475	483,766	5,500	11,256	70.7	590,378	262,220	208	48	18.8	30
Northern Pacific	1930 6,468	731,532	778,898	48,367	20,418	73.4	1,135,443	519,971	435	102	19.0	70
	1929 6,476	750,466	794,491	49,114	22,070	74.7	1,190,272	541,235	447	110	19.8	60
Oreg.-Wash. R. R. & Nav.	1930 2,246	201,556	219,111	16,382	5,115	74.6	295,442	139,606	126	19	12.8	35
	1929 2,246	195,020	205,131	13,895	5,284	74.1	300,159	139,256	128	17	11.6	27
Central Western Region:												
Atch., Top. & S. Fe (incl. P. & S. F.)	1930 11,200	1,682,098	1,808,925	81,393	49,220	64.4	2,891,638	1,062,507	786	155	16.5	207
	1929 11,154	1,790,617	1,953,545	98,154	55,312	63.7	3,325,578	1,227,928	857	159	15.7	223
Chicago & Alton	1930 1,000	282,295	297,361	3,244	6,259	58.5	402,207	146,188	128	18	12.5	30
	1929 1,000	301,382	325,112	3,753	6,933	60.8	427,321	166,825	124	27	18.0	14
Chi., Burl. & Quincy	1930 9,310	1,457,494	1,563,068	66,649	42,015	60.8	2,597,456	1,187,045	678	153	18.4	21
	1929 9,317	1,590,675	1,674,606	62,132	46,441	62.7	2,832,779	1,320,244	716	152	17.5	61
Chi., Rock I. & Pacific	1930 7,592	1,422,712	1,492,388	15,511	31,292	61.0	1,898,746	737,686	535	126	19.0	50
	1929 7,564	1,542,100	1,623,775	16,460	36,205	64.0	2,133,678	865,711	546	132	19.4	35
Denver & R. G. Wn.	1930 2,562	287,223	337,379	55,354	6,984	62.1	453,062	201,971	203	62	23.4	21
	1929 2,548	265,736	315,761	55,762	7,115	66.6	437,727	203,984	211	55	20.7	33
Oregon Short Line	1930 2,539	316,484	328,825	23,189	8,959	67.5	559,941	255,478	182	12	6.1	77
	1929 2,539	309,892	328,378	26,848	9,130	70.5	550,762	253,557	188	6	3.1	70
So. Pacific—Pacific Lines	1930 8,969	1,320,771	1,441,492	171,994	40,399	64.3	2,470,633	927,411	690	208	23.1	176
	1929 8,724	1,483,784	1,620,011	197,558	44,899	65.1	2,724,895	1,048,101	674	237	26.0	84
Union Pacific	1930 3,765	927,055	953,318	49,512	30,969	68.5	1,740,338	699,438	428	39	8.3	121
	1929 3,765	922,441	952,661	54,938	35,507	73.5	1,929,099	814,790	397	55	12.1	114
Southwestern Region:												
Gulf, Colo. & S. Fe	1930 1,932	232,536	242,865	5,904	7,368	63.3	454,853	193,879	106	19	15.1	23
	1929 1,933	246,612	255,022	9,341	8,494	66.5	507,456	224,951	129	17	11.5	42
Mo.-Kans.-Texas Lines	1930 3,176	399,235	405,911	7,967	11,613	57.9	716,780	269,771	193	49	20.1	89
	1929 3,176	430,390	439,724	9,632	13,711	60.8	813,960	319,959	189	60	24.0	71
Missouri Pacific	1930 7,424	1,526,333	1,579,135	41,559	39,875	62.5	2,480,156	1,031,927	548	75	12.1	127
	1929 7,433	1,486,709	1,549,809	48,085	42,069	64.7	2,550,435	1,091,413	533	88	14.2	119
St. Louis-San Francisco	1930 5,223	800,368	815,684	8,614	17,524	61.5	1,050,969	412,918	369	58	13.5	46
	1929 5,213	842,563	854,982	8,872	18,760	61.4	1,121,919	448,741	401	75	15.8	46
Texas & New Orleans	1930 4,701	730,317	731,156	2,742	15,758	63.9	952,120	357,523	281	43	13.3	57
	1929 4,709	787,463	791,607	2,140	16,953	65.6	1,008,034	399,036	268	70	20.6	37
Texas & Pacific	1930 1,951	445,255	445,255	4,019	11,122	57.2	718,734	250,055	207	26	11.0	30
	1929 2,015	498,839	498,839	4,308	13,013	58.5	844,334	318,677	189	21	9.9	24

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

ared with January, 1929, for Roads with Annual Operating Revenues above $25,000,000.

Region, road and year	Average number of freight cars on line: Home	Foreign	Total	Per cent unserviceable	Gross ton-miles per train-hour, excluding locomotives and tenders	Gross ton-miles per train-mile, excluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Locomotive-miles per locomotive-day
New England Region:													
Boston & Albany.....1930	4,125	3,783	7,908	5.6	18,511	1,264	465	19.9	380	29.4	7,389	179	61.0
1929	3,560	4,721	8,281	4.2	16,937	1,212	453	19.3	356	27.3	7,241	196	61.7
Boston & Maine.....1930	9,344	9,759	19,103	3.2	21,703	1,764	682	20.6	411	29.0	3,802	119	49.3
1929	10,915	10,581	21,496	2.9	19,639	1,597	620	19.6	361	26.0	3,747	129	51.8
N. Y., New H. & Hart..1930	17,288	13,686	30,974	9.3	23,186	1,826	692	21.1	314	23.7	4,614	118	50.0
1929	15,595	14,702	30,297	11.6	20,412	1,529	610	21.1	333	23.2	4,794	127	54.2
Great Lakes Region:													
Delaware & Hudson.....1930	9,694	4,949	14,643	4.1	23,707	1,895	900	30.2	649	34.5	10,853	142	57.8
1929	9,333	5,232	14,565	3.3	21,981	1,801	859	29.4	616	32.6	10,255	154	54.6
Del., Lack. & Western...1930	18,708	6,437	25,145	4.4	24,117	1,874	781	24.5	486	30.6	12,242	154	69.7
1929	18,122	7,038	25,160	3.5	22,245	1,773	761	24.7	545	33.1	13,749	159	79.2
Erie (inc. Chi. & Erie)..1930	34,924	17,427	52,351	3.0	33,409	2,522	1,051	25.3	537	33.4	12,136	122	61.4
1929	32,344	19,121	51,465	3.9	31,769	2,522	1,086	26.1	628	37.5	13,955	128	67.8
Grand Trunk Western...1930	4,115	11,200	15,315	5.3	22,166	1,590	594	20.5	347	25.6	5,206	117	77.6
1929	2,864	12,828	15,692	5.4	20,541	1,503	553	20.0	383	28.9	6,067	117	82.8
Lehigh Valley 1930	19,348	8,626	27,974	6.3	25,473	1,781	776	26.1	455	26.7	9,475	164	59.8
1929	21,927	8,566	30,493	9.3	24,407	1,760	766	25.8	449	26.7	10,180	167	53.5
Michigan Central.....1930	26,323	14,357	40,680	3.2	31,773	1,865	653	20.1	273	22.3	6,097	124	74.9
1929	22,706	15,671	38,377	5.0	29,171	1,856	654	19.9	322	26.4	6,782	127	78.2
New York Central.....1930	78,457	60,504	138,961	4.6	29,737	2,196	942	27.0	458	28.2	9,830	118	60.5
1929	78,166	65,930	144,096	4.7	28,712	2,216	951	26.7	460	28.1	10,250	124	62.9
New York, Chi. & St. L..1930	15,072	9,176	24,248	6.9	24,910	1,732	654	22.4	563	41.4	8,202	121	82.8
1929	14,224	9,824	24,048	6.4	24,694	1,789	682	21.9	622	45.7	8,987	125	80.4
Pere Marquette 1930	12,599	7,455	20,054	3.3	20,697	1,426	606	26.1	403	24.7	3,714	118	68.2
1929	11,791	7,525	19,316	3.7	19,036	1,445	628	26.5	444	27.0	3,934	121	66.5
Pitts. & Lake Erie.....1930	16,804	5,428	22,232	7.4	34,050	2,591	1,424	43.8	256	9.8	24,616	128	62.3
1929	15,224	7,525	22,749	11.3	30,485	2,780	1,537	44.0	291	11.2	28,587	129	67.4
Wabash 1930	18,167	12,286	30,453	2.3	25,868	1,634	622	22.5	531	37.4	6,473	140	77.2
1929	15,199	13,406	28,605	2.7	24,969	1,594	604	21.6	606	43.8	6,943	148	83.8
Central Eastern Region:													
Baltimore & Ohio.....1930	75,991	23,993	99,984	4.5	22,984	1,958	904	31.4	518	27.2	9,339	160	60.7
1929	75,205	27,372	102,577	5.3	21,727	1,889	888	31.9	560	28.9	10,369	171	67.1
Central of New Jersey...1930	17,892	9,525	27,417	4.7	24,435	1,945	913	33.3	286	15.4	11,322	153	53.3
1929	18,902	10,512	29,414	6.2	22,262	1,907	898	32.6	268	14.4	11,416	168	52.0
Chicago & Eastern Ill....1930	12,772	3,919	16,691	42.4	21,827	1,525	701	29.6	347	18.4	6,124	149	55.0
1929	12,848	3,937	16,785	38.7	22,865	1,580	743	30.3	401	20.9	7,121	151	58.3
Clev., Cin., Chi. & St. L..1930	25,173	18,924	44,097	4.3	27,502	1,921	884	31.0	518	28.2	9,655	132	66.0
1929	23,739	18,321	42,060	4.3	26,728	1,948	908	31.0	573	30.6	10,170	135	66.0
Elgin, Joliet & Eastern..1930	9,724	7,650	17,374	4.3	13,835	1,936	992	40.4	264	10.8	10,110	158	55.7
1929	9,410	7,655	17,065	5.5	12,935	1,922	1,003	39.9	291	11.7	11,002	160	60.1
Long Island 1930	755	4,385	5,140	1.5	5,632	763	293	26.1	78	5.6	1,003	473	35.9
1929	1,655	4,155	5,810	2.5	5,248	884	339	24.9	77	5.6	1,119	459	34.6
Pennsylvania System.....1930	224,813	66,244	291,057	3.4	27,142	2,219	1,013	30.8	421	22.2	11,376	138	55.5
1929	220,005	74,465	294,470	5.8	25,951	2,178	1,016	31.0	440	22.5	12,071	143	53.0
Reading 1930	31,241	12,463	43,704	4.0	21,016	1,843	838	33.2	409	21.0	12,302	156	61.9
1929	30,087	13,214	43,301	3.2	20,610	1,805	892	35.3	461	22.4	13,728	164	63.4
Pocahontas Region:													
Chesapeake & Ohio.....1930	31,868	9,450	41,318	2.5	35,515	2,860	1,562	45.3	1,425	55.9	21,518	92	70.5
1929	31,705	8,984	40,689	2.4	33,347	2,692	1,461	44.1	1,356	54.4	20,208	99	67.5
Norfolk & Western.....1930	32,171	8,013	40,184	0.9	42,833	3,109	1,687	47.0	1,218	44.2	21,945	129	71.4
1929	29,630	7,896	37,526	1.0	41,914	3,052	1,670	46.2	1,276	46.3	21,471	136	64.2
Southern Region:													
Atlantic Coast Line.....1930	26,613	9,395	36,008	3.8	20,473	1,393	490	19.5	301	25.4	2,100	113	48.8
1929	25,644	9,937	35,581	5.3	19,449	1,403	517	20.0	328	26.3	2,266	114	47.1
Central of Georgia.....1930	5,925	3,005	8,930	6.2	19,393	1,345	538	22.0	483	32.4	2,272	141	54.4
1929	5,337	3,378	8,715	5.3	18,794	1,318	535	21.6	499	32.9	2,291	136	55.0
Ill. Cent. (inc. Y. & M. V.)1930	44,935	18,201	63,136	3.6	22,410	1,667	703	28.7	690	40.0	6,508	154	76.4
1929	41,993	21,021	63,014	3.7	22,641	1,693	745	29.3	803	44.1	7,541	152	81.5
Louisville & Nashville....1930	45,891	12,739	58,630	8.5	19,199	1,470	711	34.0	636	31.7	7,102	160	84.0
1929	43,769	14,858	58,627	9.9	18,430	1,438	699	33.7	646	32.1	7,220	158	81.6
Seaboard Air Line.....1930	16,832	7,780	24,612	3.7	19,580	1,482	540	21.6	413	31.4	2,267	131	63.8
1929	17,277	8,895	26,172	6.2	18,991	1,455	529	21.0	382	29.3	2,236	137	62.9
Southern 1930	52,680	15,153	67,833	12.2	18,836	1,354	544	22.8	367	25.4	3,732	167	49.7
1929	50,865	16,063	66,928	8.9	18,493	1,360	548	22.5	384	26.3	3,843	169	50.7
Northwestern Region:													
Chi. & North Western...1930	49,450	26,745	76,195	5.5	17,827	1,489	556	23.5	324	22.0	2,921	168	55.9
1929	48,124	29,427	77,551	5.8	16,831	1,334	520	23.5	310	20.8	2,841	171	58.9
Chi., Mil., St. P. & Pac..1930	55,270	18,856	74,126	2.8	20,266	1,549	640	25.2	455	29.0	3,003	158	63.8
1929	52,815	23,146	75,961	2.8	19,376	1,525	653	25.1	471	28.6	3,184	164	68.1
Chi., St. P., Minn. & Om..1930	2,705	9,942	12,647	8.1	14,242	1,144	481	25.7	429	27.2	3,149	155	73.9
1929	2,716	8,844	11,560	7.0	12,821	1,055	440	24.3	416	26.9	2,790	162	69.2
Great Northern 1930	42,320	9,014	51,334	5.0	20,097	1,576	723	26.3	361	19.5	2,220	177	45.6
1929	40,252	10,705	50,957	4.2	20,350	1,701	801	26.8	407	21.3	2,475	179	44.9
Minn., St. P. & S. St. M..1930	19,711	4,278	23,989	3.1	16,510	1,325	561	23.0	329	21.5	1,798	132	62.7
1929	19,243	4,863	24,106	3.7	14,852	1,266	562	23.3	351	21.3	1,941	140	61.7
Northern Pacific.....1930	40,896	5,958	46,854	7.3	21,207	1,552	711	25.5	358	19.2	2,593	192	49.7
1929	38,876	7,832	46,708	7.2	20,993	1,586	721	24.5	374	20.4	2,696	185	48.9
Ore.-Wash. R.R. & Nav..1930	7,761	3,214	10,975	5.5	19,524	1,466	693	27.3	410	20.1	2,005	203	52.6
1929	7,632	3,183	10,815	6.3	20,603	1,539	714	26.4	415	21.3	2,000	188	49.0
Central Western Region:													
Atch., Top. & S. Fe (incl. 1930	63,953	16,607	80,560	6.4	26,813	1,719	632	21.6	425	30.6	3,060	128	64.8
P. & S. F.).....1929	57,625	16,890	74,515	6.1	28,229	1,857	686	22.2	532	37.6	3,551	124	65.1
Chicago & Alton.....1930	10,218	4,218	14,436	4.5	21,763	1,425	518	23.4	327	23.9	4,717	146	66.2
1929	9,789	4,249	14,038	5.4	20,310	1,418	554	24.1	383	26.2	5,383	148	70.3
Chi., Burl. & Quincy....1930	44,285	17,883	62,168	4.6	23,741	1,782	814	28.3	616	35.8	4,113	149	63.3
1929	44,050	19,810	63,860	5.0	23,396	1,781	830	28.4	667	37.4	4,571	145	64.5
Chi., Rock I. & Pacific..1930	32,236	17,203	49,439	5.4	18,315	1,335	519	23.6	481	33.5	3,134	179	73.6
1929	29,912	20,440	50,352	5.3	17,662	1,384	561	23.9	555	36.2	3,692	172	78.0
Denver & R. G. Wn.....1930	11,725	4,825	16,550	2.5	17,700	1,577	703	28.9	394	21.9	2,543	196	47.8
1929	10,756	4,513	15,269	3.0	17,979	1,647	768	28.7	431	22.6	2,583	191	45.1
Oregon Short Line.....1930	8,264	5,354	13,618	3.7	23,808	1,769	807	28.5	605	31.5	3,246	134	58.7
1929	7,497	5,372	12,869	3.3	24,487	1,777	818	27.8	636	32.5	3,221	136	58.9
So. Pacific—Pacific Lines.1930	40,197	27,296	67,493	5.6	25,499	1,871	702	23.0	443	30.0	3,335	134	58.0
1929	38,620	27,720	66,340	7.4	24,346	1,836	706	23.3	510	33.5	3,875	130	64.4
Union Pacific 1930	23,287	8,481	31,768	6.0	31,936	1,877	754	22.6	710	45.9	5,992	133	69.4
1929	21,409	8,322	29,731	12.5	34,687	2,091	883	22.9	884	52.4	6,981	123	72.0
Southwestern Region:													
Gulf, Colo. & S. Fe....1930	11,906	3,264	15,170	4.4	28,402	1,956	834	26.3	412	24.8	3,238	107	64.5
1929	10,053	4,215	14,268	3.9	29,787	2,058	912	26.5	509	28.9	3,754	99	58.6
Mo.-Kans.-Texas Lines...1930	17,055	6,426	23,481	6.0	25,039	1,795	676	23.2	371	27.6	2,740	115	55.2
1929	16,729	6,492	23,221	6.3	26,223	1,891	743	23.3	444	31.3	3,249	110	58.3
Missouri Pacific 1930	29,056	20,778	49,834	4.6	22,318	1,625	676	25.9	668	41.3	4,484	150	83.9
1929	27,502	21,336	48,838	3.6	23,546	1,715	734	25.9	721	43.0	4,736	140	82.9
St. Louis-San Francisco..1930	25,810	7,506	33,316	3.1	17,448	1,313	516	23.6	400	27.6	2,550	180	62.4
1929	24,853	8,089	32,942	3.3	18,395	1,332	533	23.9	439	29.9	2,777	183	58.5
Texas & New Orleans...1930	12,282	14,096	26,378	3.8	18,968	1,304	490	22.7	437	30.2	2,453	109	73.1
1929	12,077	16,817	28,894	4.8	18,702	1,280	507	23.5	445	28.8	2,734	106	75.8
Texas & Pacific.....1930	6,471	5,898	12,369	5.2	22,637	1,614	562	22.5	652	50.7	4,134	106	62.2
1929	6,531	9,501	16,032	3.8	21,914	1,693	639	24.5	641	44.7	5,102	103	77.3

News of the Week

(*Continued from page 781*)

packed in switch points, the present one took place between 24 and 34 degrees and thereby permitted the snow to pack more tightly. Although the wet driving snow was harder to handle, trains arrived and departed with much less delay. In the first blizzard some trains were as much as four hours late. In the December storm the roads using the LaSalle Street Station suffered the most but in the March storm those using the Central station and the Dearborn Street station experienced the greatest delays. At the Central station on the first day the Panama Limited and the Floridan of the Illinois Central were two hours late, while the Wolverine of the Michigan Central was one hour late. The other trains arriving at this station were also delayed about one hour. On the morning of the second day the delay was reduced considerably when the trains were stopped at Sixty-third Street, about 7 miles from the terminal and the passengers placed on the Illinois Central electrically operated trains. On the second day the Panama Limited arrived at Sixty-third Street only forty minutes behind schedule. While the second morning witnessed considerable improvement in arrivals, many trains were as much as 30 minutes late in leaving.

Trains using the Dearborn Street station suffered considerable delay. On the first day the Hot Springs Special of the Wabash was three hours late in arriving, while the Missionary, the Hope and the Chief of the Atchison, Topeka & Santa Fe were an hour and a half late. On the second day the Dearborn of the Chicago & Eastern Illinois was three hours, 50 min. late, the Nashville Limited, 2 hrs. 10 min., and the Dixie Flyer, 2 hrs. 15 min. The Detroit Chicago Limited of the Wabash was 2 hrs. 45 min. late and the Chief of the Santa Fe, which arrives 2 hours later, was 35 min. late. The trains leaving on the second morning were delayed about one hour.

At the other stations the delay was of less consequence. On the first morning some trains were as much as one hour, 30 min. late, but on the second morning none were more than 20 minutes late. The Century of the New York Central was able to arrive and depart on schedule while the Broadway of the Pennsylvania arrived five minutes early on the second morning. The Chicago & North Western following its experience in December installed gas burners under the switches in the terminal and as a result was able to handle both its through and suburban trains without delay of over one hour.

I. C. C. Opens D. & R. G. W. Hearing at Denver

The Interstate Commerce Commission hearing on the application of the Denver & Rio Grande Western to acquire the Denver & Salt Lake opened at Denver, Colo., on March 24 before Haskell Davis, examiner for the Commission, with William H. Williams, chairman of the executive committee of the Rio Grande Western presenting the introductory statement for the applicant road. Representatives of the Public Utilities Commission of Utah, the Public Utilities Commission of Colorado, shippers from Utah and Colorado and taxpayers of Colorado were present at the hearing though Examiner Davis explained that the hearing would be limited strictly to the purchase application to the exclusion of certain considerations and interests involved in the construction, financing and operation of the Moffat Tunnel.

Mr. Williams submitted a statement which is in part as follows: The Rio Grande, if permitted to buy stock control of the Denver & Salt Lake, will build another and shorter tunnel rather than pay increased rental for the use of the Moffat Tunnel. The Rio Grande is willing to buy out the Moffat road minority stockholders at a price of $155 per share—the price paid for the majority stock—and the offer will stand for 60 days after the Commission's approval of the application. Testimony to be presented by the applicant will be limited to the application to purchase the D. & S. L. and the Dotsero cutoff and the tunnel litigation will not be considered. The Rio Grande Western will resist any attempt to attach any conditions to its permit to purchase the Moffat road.

Mr. Williams declared that if the court rules that an increased rental must be paid for the use of the Moffat Tunnel the Rio Grande Western will construct a four-mile tunnel through Corona hill at a cost that is not expected to exceed $6,500,000. Although the Moffat tunnel is only two years old much retimbering is necessary, and to place the tunnel in good condition will require an expenditure of about $2,000,000, he said. The hearing was transferred to Salt Lake City, Utah, on March 27.

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled from the Monthly Reports of Revenues and Expenses for 177 Steam Railways, Including 16 Switching and Terminal Companies.

FOR THE MONTH OF JANUARY, 1930 AND 1929

Item	United States		Eastern District		Southern District		Western District	
	1930	1929	1930	1929	1930	1929	1930	1929
Average number of miles operated	242,370.66	242,185.07	60,617.45	60,510.99	45,764.78	45,760.36	135,988.43	135,913.72
Revenues:								
Freight	$337,992,605	$367,236,303	$148,742,613	$161,445,773	$65,903,187	$69,352,451	$123,346,805	$136,438,079
Passenger	a 70,451,666	b 74,996,586	37,573,190	38,905,478	10,930,060	11,683,253	21,948,416	24,407,855
Mail	9,447,473	9,290,619	3,630,308	3,561,125	1,599,331	1,592,686	4,217,834	4,136,808
Express	8,289,358	9,099,489	3,829,372	4,182,373	1,325,478	1,521,275	3,134,508	3,395,841
All other transportation	14,505,474	16,225,367	8,446,259	9,149,434	1,068,146	1,118,495	4,991,069	5,957,438
Incidental	9,674,059	9,860,722	5,063,316	5,198,370	1,450,314	1,396,715	3,160,429	3,265,637
Joint facility—Cr.	1,122,721	1,060,893	363,234	366,231	182,300	151,777	577,187	542,885
Joint facility—Dr.	292,862	307,459	78,199	77,216	34,794	32,401	179,869	197,842
Railway operating revenues	451,190,494	487,462,520	207,570,093	222,731,568	82,424,022	86,784,251	161,196,379	177,946,701
Expenses:								
Maintenance of way and structures	54,833,265	58,418,686	24,060,527	25,069,441	11,281,517	11,778,077	19,491,221	21,571,168
Maintenance of equipment	95,828,561	100,237,377	44,967,988	47,948,541	16,923,219	17,222,495	33,937,354	35,066,341
Traffic	11,322,194	10,664,646	4,344,666	3,969,910	2,191,528	2,170,264	4,786,000	4,524,472
Transportation	173,534,894	180,071,298	81,358,033	84,654,142	27,748,707	28,677,533	64,428,154	66,739,623
Miscellaneous operations	4,915,569	4,807,735	2,355,861	2,296,515	695,500	652,099	1,864,208	1,859,121
General	16,936,764	16,285,714	7,523,561	7,099,454	2,797,958	2,746,556	6,615,245	6,439,704
Transportation for investment—Cr.	902,545	747,799	136,209	115,872	89,153	74,434	677,183	557,493
Railway operating expenses	356,468,702	369,737,657	164,474,427	170,922,131	61,549,276	63,172,590	130,444,999	135,642,936
Net revenue from railway operations	94,721,792	117,724,863	43,095,666	51,809,437	20,874,746	23,611,661	30,751,380	42,303,765
Railway tax accruals	29,682,869	31,401,857	11,999,585	12,343,041	5,886,998	6,146,998	11,796,286	12,911,818
Uncollectible ry. revenues	91,677	72,837	47,595	33,781	14,225	12,512	29,857	26,544
Railway operating income	64,947,246	86,250,169	31,048,486	39,432,615	14,973,523	17,452,151	18,925,237	29,365,403
Equipment rents—Dr. balance	7,439,719	7,095,528	4,161,389	4,215,748	d 101,576	d 198,384	3,379,906	3,078,164
Joint facility rent—Dr. balance	2,033,112	1,978,703	960,914	999,811	213,595	139,673	858,603	839,219
Net railway operating income	55,474,415	77,175,938	25,926,183	34,217,056	14,861,504	17,510,862	14,686,728	25,448,020
Ratio of expenses to revenues (per cent)	79.00	75.85	79.24	76.74	74.67	72.79	80.92	76.23

a Includes $3,302,282 sleeping and parlor car surcharge. b Includes $3,315,109 sleeping and parlor car surcharge. d Deficit or other reverse items.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to Revision.

Traffic

The New York, Chicago & St. Louis, beginning March 30, will operate its Cleveland-St. Louis and Cleveland-Hot Springs, (Va.) sleeping cars from and to the New Union Terminal at Cleveland.

The Pennsylvania announces that its two fastest trains between New York and St. Louis, "The American" and "The Spirit of St. Louis," are to be run through in 23 hours, one hour faster than by the present schedules.

Following the reduction of one hour in passenger schedules from Chicago to the Pacific Northwest, the railroads between Chicago and California will, on May 1 cut certain schedules from 58 hours to 56½ hours westbound and from 58 to 57 hours eastbound.

The Public Service Commission of New Jersey has granted the petition of the Pennsylvania for authority to discontinue the operation of passenger trains on the Millstone Branch. This is a line of about seven miles, connecting with the main line at New Brunswick, N. J., and the present schedule provides for one train toward New York in the morning and one returning in the evening. The order takes effect on April 1.

A Guide to Wooden Box Construction

The Freight Container Bureau of the American Railway Association has issued bulletin No. 14, "A Guide to Good Construction of Nailed Wooden Boxes," following the requests of railroads, manufacturers and shippers for a bulletin of this type. The bulletin is of value to the shipping public and will assist railroad employees in determining if a container is proper and efficient. It is designed to help them make out clear and intelligent exception reports.

United States Freight Company

The United States Freight Company reports that from its own operations and those of its subsidiaries, for the year ending December 31, 1929, there was made a net profit of $1,110,182; and the gross earnings $36,210,120, were 20 per cent greater than in the preceding year; and about 50 per cent greater than in 1927. Cost and expenses, $34,544,272 were, however, equal to 95 per cent of the gross revenue.

The Universal Carloading & Distributing Company, which is the principal subsidiary, had a net income 59 per cent greater than in 1928. Among the assets of the United States Freight Company real estate is entered at $2,191,493 and steamships at $2,817,429.

Correction

Footnote No. 2 appearing on page 691 of the article entitled "Commodity Values and Freight Rates," in the *Railway Age* of March 22, should have read as follows:

[2] That investment is greatly affected by traffic can readily be demonstrated from available data of the investment per mile of line for various railroads of varying traffic density. Taking all of the railways more than 300 miles in length (to minimize the effect of terminals on the per mile of line figures) and omitting four railways for which complete data were not at hand, a comparison of the gross ton-miles (freight and passenger services combined) per mile of line with the tentative or final valuations issued by the Interstate Commerce Commission, shows that the relation between traffic and value may be expressed by the equation:

Value per mile (at prewar prices)	equals $12,745 plus	the product of $11,906 and the number of millions of gross ton-miles per mile per annum

It is obvious that the constant factor, $12,745, becomes relatively less important as the traffic grows.

In the printing of this note last week, the gross ton mile factor of the equation read "number of gross ton-miles per mile per annum," whereas it should have read "number of millions of gross ton-miles per mile per annum" as above.

Plan Seven-Hour New York-Chicago Air Service

The National Air Transport, which now carries air mail and air express between New York and Chicago, and between Chicago and Dallas, Tex., expects to begin this summer the operation of passenger airplanes between these points. The service as projected involves the use of airplanes capable of maintaining a cruising speed of 140 miles an hour, which will enable the transportation of passengers from Manhattan island to the Chicago "loop" in 6 hr. and 50 min., and from the "loop" to Dallas, Tex., in 8 hours.

Between New York and Chicago, the passenger planes will follow the air mail route, stopping at Toledo, Ohio, and Cleveland. The mail route between Chicago and Dallas will also be followed, stops being made at Fort Worth, Tex., Tulsa, Okla., and Kansas City, Mo. The company will also establish a new passenger line between Oklahoma City, Okla., Tulsa, and St. Louis, Mo.

The rates of fare to be changed and the frequency of schedules to be operated are not yet decided upon. It is expected, however, that the fare will be somewhat more than the fare by railroad, including Pullman accommodations, and somewhat less than the rate of 10 cents a mile which has been in effect in the past on a number of air lines. It is expected also that the service will begin with one trip in each direction daily over each of the lines, additional schedules to be established when the business warrants.

"National Air Transport has stayed out of the air passenger business until such a time as it was believed possible to transport passengers on fast schedules which would effect such great savings in time as to make the service invaluable to travelers," says a joint statement issued by Colonel Paul Henderson, first vice-president, and L. D. Seymour, general manager, of National Air Transport. "We believe that the time has arrived and we are going ahead with plans for a super-air passenger service."

Trans-Missouri-Kansas Shippers' Board

The general business outlook for the territory of the Trans-Missouri-Kansas Shippers' Advisory Board for the second quarter of the year will be satisfactory in most lines of industry, according to reports presented at the meeting of the board at Jefferson City, Mo., on March 19. The estimated total carloadings of the 29 principal lines of industry in the territory reflect a slight decrease in traffic, compared with the second quarter of 1929. These lines of industry, loaded a total of 450,875 cars during the second quarter of 1929, and business reports estimate a total of 441,132 cars needed for the second quarter of 1930, a decrease of 2.2 per cent. Increased shipments are expected in agricultural implements, cement, coke, eggs, poultry, fresh fruits, fresh vegetables, hay, straw and alfalfa, castings, machinery, petroleum and products, salt, sand, stone and gravel. Decreases in shipments are expected in automobiles, clay products, coal, dairy products, grain, grain products, iron and steel, lime plaster and gypsum, livestock, lumber, forest products, ore, other metals, packing house products, potatoes, sugar, syrup and molasses.

The Hon. Henry S. Caulfield, governor of the state of Missouri, addressed the meeting on improved rail conditions, and pointed out the benefits derived by industry through such improvements. Miss Amelia Earhart, assistant general traffic manager of the Transcontinental Air Transport, Inc., spoke on the subject of aviation.

New England Shippers' Board

The New England Shippers' Advisory Board held its regular meeting at Boston on March 19, with an attendance of about 500. William F. Garcelon was re-elected general chairman. The reports of the commodity committees were largely optimistic, but numerous prospective decreases in the estimates of the car demands for April, May and June resulted in an indicated decrease of 2.4 per cent in the total for the quarter. The more important of the predicted decreases, as compared with last year, are: Grain, 20 per cent; hay, 50; iron and steel, 10; ice, 15 to 20; live stock, 20; lumber and forest products, 10; machinery, 20 to 25; scrap metals, 30 per cent. The only considerable increases predicted are cement, 20 per cent, and petroleum products, 10 per cent.

Dr. Harden F. Taylor addressed the meeting on the preparation, transportation and distribution of frozen foods, and W. H. Pease, of the Bridgeport Brass Company, presented a paper on the practicality of traffic training courses. For three years past, the Connecticut Manufacturers' Association has been engaged in training traffic executives.

A motion picture illustrating freight yard work and explaining the value of impact recorders was shown, on behalf of the Boston & Maine and the New Haven.

Equipment and Supplies

Locomotives

THE CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA is inquiring for three locomotives of the 4-6-2 type.

THE DURHAM & SOUTHERN has ordered two locomotives of the 2-10-0 type from the Baldwin Locomotive Works.

THE AKRON & BARBERTON BELT has ordered four eight-wheel switching locomotives from the Baldwin Locomotive Works.

Freight Cars

THE GENERAL ELECTRIC COMPANY has ordered five steel underframe flat car bodies of 50 tons' capacity from the American Car & Foundry Company.

THE PENNSYLVANIA SALT MANUFACTURING COMPANY, Philadelphia, Pa., has ordered one tank car of 4,000 gal. capacity from the General American Tank Car Corporation.

THE ANGLO-MEXICAN PETROLEUM COMPANY, LTD., ordered two tank cars of 6,500 gal. capacity and one tank car with two compartments of 5,200 gal. capacity from the General American Tank Car Corporation. All the cars are to be of 36-in. gage.

Passenger Cars

THE CHESAPEAKE & OHIO, THE PERE MARQUETTE AND HOCKING VALLEY, reported in the *Railway Age* of January 4 as being in the market for a total of 91 passenger cars, have placed orders for this equipment to cost $2,900,000 as follows:

No.	Type	Builder
	Chesapeake & Ohio	
30	De luxe Coaches.....	Pullman
11	De luxe Coaches.....	Standard Steel
6	Mail and Express.....	Amer. C. & F.
15	Baggage and Passenger....	Pressed Steel
5	Passenger, Baggage and Mail	St. Louis Car
	Pere Marquette	
8	De luxe Coaches.....	Pullman
12	Baggage and Express.....	Amer. C. & F.
	Hocking Valley	
4	De luxe Coaches.....	Standard Steel

THE UNION PACIFIC has ordered two 73-ft. passenger gas-electric rail motor cars from the J. G. Brill Company and two trailers from the Pullman Car & Manufacturing Corporation. Inquiry for this equipment was reported in the *Railway Age* of March 8.

THE SOUTHERN PACIFIC has ordered five dining cars from the Pullman Car & Manufacturing Corporation. Inquiry for this equipment was reported in the *Railway Age* of January 4. This company has supplanted its inquiry for five lounge cars with another for one lounge car and 3 observation cars.

Iron and Steel

THE READING has ordered 250 tons of steel for a bridge in Philadelphia, Pa., from the McClintic-Marshall Company.

THE BALTIMORE & OHIO has ordered 450 tons of steel for a bridge at Columbus, Ohio, from the American Bridge Company.

THE NORFOLK & WESTERN has ordered 700 tons of steel for a pier at Norfolk, Va., and 1,500 tons of steel for bridges from the Virginia Bridge & Iron Company.

Signaling

THE BALTIMORE & OHIO has ordered from the Union Switch & Signal Company material for an electro-mechanical interlocking at Bond, W. Va.

THE CHESAPEAKE & OHIO has ordered from the Union Switch & Signal Company material for a mechanical interlocking at Norge, Va.; 16 levers.

THE ATLANTIC COAST LINE has ordered from the Union Switch & Signal Company material for an electro-mechanical interlocking at Dunlop, Va.; 16 mechanical levers and five electric.

THE SEABOARD AIR LINE has contracted with the Union Switch & Signal Company for the complete installation of automatic block signals on its line, single track, between Hamlet, N. C., and Monroe. Color-light signals will be used, style R.

THE GRAND TRUNK has ordered from the Union Switch & Signal Company 121 color-light signals and other material preparatory to the installation of automatic block signals on its line between Lansing, Mich., and Lapeer, 70 miles, double track.

Motor Coaches

THE UNION PACIFIC has ordered 33 motor coaches. The order was divided as follows: 12 coaches from the American Car & Foundry Motors Company; 11 from the General Motors Truck Company, and 10 from the White Company.

THE CHICAGO, BURLINGTON & QUINCY AND THE NORTHERN PACIFIC have changed the name of "The Comet" which operates between Chicago and Seattle Wash., to "The Alaskan," the name Comet being retained for the Yellowstone National Park train which is run from Chicago during the Park season. Because of the increase of nation-wide interest in Alaska, "Alaskan" has been chosen as an appropriate name for a train operating between the middle-west and the Pacific Coast.

Supply Trade

Edwin N. Hazlett has joined the sales engineering department of the **Copperweld Steel Company,** Glassport, Pa.

The Reliance Manufacturing Company, Massillon, Ohio, has moved its Detroit, Mich., office from 650 Baltimore avenue, west, to 9771 French road.

The Bradford Corporation will move its New York office from 23 West Forty-Third street to 370 Lexington avenue, New York City, about April 1.

At the annual meeting of the shareholders on March 14 at Cleveland, Ohio, the name of the Ohio Electric & Controller Company was changed to the **Ohio Electric Manufacturing Company.**

R. H. McGredy has been appointed representative of the **Harnischfeger Sales Corporation,** Milwaukee, Wis., with headquarters at 50 Church street, New York.

J. B. Strong, president of the Ramapo Ajax Corporation, has been appointed an executive member of the **Railway Business Association,** succeeding Alexander Turner, resigned.

The Wrought Iron Company of America, Lebanon, Pa., has made an agreement with the **Lloyd Forge Company,** Annville, Pa., to sell the latter's output of Lloyd's patent turnbuckles.

The Chicago offices of **The Okonite Company** and of the **Hazard Insulated Wire Works,** division of The Okonite Company, will be moved about April 15 from 310 South Michigan boulevard to 20 North Wacker drive, Chicago.

Frederick V. Green, formerly vice-president of the Pittsburgh Testing Laboratory has joined the force of the **Triplex Safety Glass Company,** Clifton, N. J., makers of laminated glass. Mr. Green will handle the railway business in the eastern territory, with headquarters at 32 West Fortieth street, New York. As announced in the *Railway Age* of January 11, Mr. Green is also a special representative in connection with railroad and industrial work of the Gameville Company, Newton Upper Falls, Mass., makers of fire alarm apparatus.

The firm of **MacElwee & Crandall, Inc.,** was recently established by **Roy S. MacElwee** and **J. Stuart Crandall,** with headquarters at Cambridge, Mass. The new firm will specialize as consulting engineers in matters of lake, river and ocean waterfront development, port and port city planning and zoning, industrial and traffic surveys and plant location reports. Mr. MacElwee was graduated from Columbia University in 1907 with the degree of B. S. He studied structural engineering and architecture in Germany and received the degrees of M. A. and Ph. D. from the University

of Berlin in 1915. During 1907 and 1908 he served as branch manager at Paris of the Silk Textile Waterproofing Company and then to 1912 was in the service of the International Harvester Company in central Europe and later was consecutively sales manager at Berlin, and branch manager at Hamburg, of the Otis Elevator Company, until August 1914. When he entered the United States consular service at Berlin. In 1918 he received a commission of first lieutenant-colonel of engineers and in 1928 was on the staff of General Goethals as lieutenant-colonel of the Officers Reserve Corps. In 1919 he was appointed assistant director and later became director, United States Bureau of Foreign and Domestic Commerce. From 1923 to 1929 he held various positions including commissioner of port development at Charleston, S. C. and vice-chairman of the United States Section for Decongestion of the port of Havana, Cuba. Mr. Crandall was graduated with the degrees of B. S. and C. E. from the University of Maine and took a graduate course in soil mechanics and foundations in 1927 at the Massachusetts Institute of Technology. He served as assistant to superintendent for the Crandall Engineering Company, later becoming assistant superintendent on railway dry docks. He served as a second lieutenant of engineers in the United States Army in the United States and in France, later becoming captain. Subsequently he held various positions wth the Crandall Engineering Company and is now treasurer and engineer of that company.

National Steel Car's Reparations Claim

An early hearing of the war claim for $1,800,000 by National Steel Car Company of Canada against the Canadian secretary of state, custodian of reparations, is scheduled. This claim is of much interest to holders of National Steel Car stock, who are hopeful that the finding of the court will be favorable.

The claim is for $1,223,533, but it will actually amount to much more than this, as the company is claiming interest back to January 10, 1920, at 5 per cent. which would easily bring the total to $1,800,000.

The war claim which is about to be aired in Exchequer Court has a most interesting history, dating back to November, 1915, when the company received an order from the government for 4,000 steel cars for the Paris, Lyons & Mediterranean. When all ready to make delivery, by means of a vessel named the King George, this ship was sunk unlawfully, they claim, by a German submarine, on December 8, 1916. Being unable to charter any other vessel, National Steel Car was prevented from carrying out an extremely valuable contract.

Their claim for compensation came before Hon. William Pugsley, then a commissioner for the hearing and determining of reparation claims, who gave judgment for the company on May 31, 1924.

Hon. Mr. Pugsley's judgment was that the claimants, National Steel Car, were entitled to recover $1,223,533.19 with interest at 5 per cent. from January 1, 1920, the date of the Treaty of Versailles. Hon. Mr. Pugsley died, and subsequently James Friel, who was named to continue Mr. Pugsley's investigations, made a ruling without notice to National Steel Car, allowing it to bring in a substitute claim regarding the company's interest in the ship that had been chartered. The company then succeeded in having the case referred to the Exchequer Court of Canada for a hearing, under the provisions of the Reparations Payments Act, 1929.

Western Electric Company

Net earnings of $26,995,246 were reported by the Western Electric Company for the year ending December 31, 1929, according to the annual report made public on March 17. The year 1929 is characterized in the report as "an outstanding one in the history of the Western Electric Company." Total sales were $410,950,000, an increase of 42.7 per cent over 1928 which was previously the largest year in Western Electric history.

The income account for the year ending December 31, 1929, follows:

Sales		$410,949,817
Cost of Sales		387,969,260
Net Profits on Sales		$22,980,557
Other Income (Net)		8,575,217
Net Earnings Available for Interest and Dividends		$31,555,774
Interest Deductions		4,560,528
Net Earnings Available for Dividends		$26,995,246
Dividends:		
$4.00 per share on Common Stock outstanding during year	$18,250,000	
$1.00 per share extra Dividend on Common Stock outstanding December 26, 1929	5,250,000	23,500,000
Balance carried to Surplus		$3,495,246

General Electric Company

The year 1929 was the best in the history of the General Electric Company in volume of orders received, shipments billed, total profits and earnings per share of common stock, according to the annual report made public March 24.

Orders received during 1929 increased 28 per cent over 1928, sales billed increased 23 per cent, net income from sales increased 24.5 per cent, and earnings per share of common stock increased 25 per cent. Profit available for dividends amounted to $67,289,880, equivalent, after dividends on the special stock, to $8.97 a share on the 7,211,481 shares of no par value common stock, compared with $54,153,806 or $7.15 a share for 1928.

Orders received during 1929 amounted to $445,802,519, compared with $348,848,512 in 1928, an increase of 28 per cent, and unfilled orders at the end of the year totalled $94,623,000, compared with $72,953,000 at the close of 1928, an increase of 30 per cent. Sales billed for 1929 were $415,338,094, compared with $337,189,422 in 1928; net income from sales in 1929 amounted to $49,395,896 as compared with $39,661,230 in 1928.

A comparison of income and expenses for 1929 with the previous year follows:

	1929	1928
Net sales billed	$415,338,094	$337,189,422
Less: Cost of sales, including operating, maintenance and depreciation charges, reserves and provision for all taxes	365,942,197	297,528,192
Net income from sales	$49,395,897	$39,661,231
Income from other sources:		
Income from associated companies and miscellaneous securities	$9,681,387	$8,077,245
Interest and discount	3,153,044	2,982,000
Income from U. S. Government securities	3,929,834	3,605,780
Royalties and sundry revenue	4,661,814	3,006,177
	$21,426,079	$17,671,202
Total income	$70,821,977	$57,332,433
Less: Interest payments	$450,806	$321,678
Addition to general reserve	3,081,290	2,856,948
	$3,532,096	$3,178,626
Profit available for dividends	$67,289,880	$54,153,806
Less: 6% cash dividends on special stock	2,574,819	2,574,655
Profit available for dividends on common stock	$64,715,061	$51,579,151
Less: Regular cash dividends on common stock	32,449,285	28,843,769
Extra cash dividends on common stock.	7,210,949	14,421,887
Surplus for the year	$25,054,827	$8,313,495

Pullman Incorporated

The annual report of Pullman Incorporated for the year ending December 31, 1929, shows total earnings from all sources of $19,629,143, or $17,678,698 after deducting a reserve for federal income taxes amounting to $1,950,445. Dividends paid by Pullman Incorporated amounted to $13,491,831 and the proportion of dividends that the subsidiary, the Pullman Company, paid to minority stockholders totaled $25,963. The balance to surplus was $4,160,904. The consolidated income account as of December 31, 1929, follows:

Earnings:	1929	1928
From carrier business of the Pullman Company, after deducting all expenses incident to operations	$20,756,087	$22,477,890
Less: Charges and allowances for depreciation	10,338,488	9,993,594
	$10,426,599	$12,484,296
From all manufacturing properties and Pullman Railroad, after deducting all expenses incident to operations	7,365,286	4,125,509
Less: Charges and allowances for depreciation	1,203,394	1,201,664
	$ 6,161,892	$ 2,923,845
From investments, etc.	3,040,652	2,989,735
Total earnings from all sources	$19,629,143	$18,397,876
Less: Reserve for federal income tax	1,950,445	2,001,180
Balance of earnings	$17,678,698	$16,396,696
Dividends paid:		
By Pullman Incorporated	13,491,831	13,471,018
Proportion of dividends of subsidiary, the Pullman Company, paid to minority stockholders	25,963	21,366
Balance to surplus	$ 4,160,904	$ 2,904,312

The statement of David A. Crawford, president, to stockholders, in part, follows:

The 1929 gross revenue of the common carrier subsidiary, the Pullman Company, exceeded that for 1928 by approximately $1,500,000, and was the largest in the history of the Company, with the exception of the record year 1926. However, as result of increased expenses, principally on account of higher wage costs and heavier maintenance expenditures, net earnings from carrier business were $2,057,000 less than in 1928. In the carrier operations the period has been reached when a number of the older, less favorable car service contracts with important railroads, made prior to the great change in operating conditions and costs that came in with the War, are now expiring, and it is expected that new contracts carrying terms more favorable to the Pullman Company will be negotiated. A number of such contracts have already been revised or renewed on terms more favorable to the Pullman Company.

At a special meeting held January 28, 1930, the stockholders approved the recommendation of directors that the charter of the corporation be amended to increase the authorized capital stock issue of the corporation by 500,000 shares to permit acquisition of the plants of Osgood Bradley Car Company and Standard Steel Car Company and subsidiaries, as fully described in a circular letter submitted to all stockholders under date of December 28, 1929. Acquisition of these plants in exchange for the 500,000 shares of new stock was completed March 1, 1930; the inventories, receivables, etc., were also acquired at that time by a provisional payment in cash or equivalent amounting to $21,067,320 subject to ratification in a later final settlement; and necessary new subsidiary corporations have been formed to operate the properties thus acquired.

Following is a list of plants owned by the manufacturing subsidiaries of the corporation, with estimated annual capacities under normal operating conditions as shown:

	Annual Capacity		
	Freight Cars	Passenger Cars	Car Wheels
Pullman Car & Manufacturing Corporation—			
Pullman, Ill.	22,500	1,800	120,000
Michigan City, Ind.	22,500	....	150,000
Bessemer, Ala.	9,000	....	.....
Standard Steel Car Corporation—			
Butler, Pa.	22,500	....	.....
Hammond, Ind.	15,000	600	.....
St. Paul, Minn.	3,000	....	.....
Baltimore, Md.	7,500	....	.....
Osgood Bradley Car Corporation—			
Worcester, Mass.	.....	300	.....
Sagamore, Mass.	6,000	....	.....
Richmond Car Corporation—			
Richmond, Va.	3,600	....	.....
Middletown Car Company—			
Rio de Janeiro, Brazil	1,500	....	.....
LaRochelle, France (Entreprises Industrielles Charentaises)	.....	150	.....
Steel Car Forge Corporation—			
Elwood City, Pa.	.....	....	*30,000
Hammond, Ind.	.....	....	*15,000
Dickson Car Wheel Company—			
Houston, Tex.	.....	....	90,000
New Orleans Car Wheel Company—			
New Orleans, La.	.....	....	90,000
Total—Cars	113,100	2,850	
Wheels			450,000
Forgings			45,000

* Tons of forgings.

With the productive capacity and geographic diversifications indicated, the manufacturing subsidiaries are in strategic position to participate advantageously in such domestic or export car business as may offer. During the year a new plant equipped to build freight cars of all the modern types, has been built at Bessemer, Ala., in the Birmingham district, by Pullman Car & Manufacturing Corporation, and is now in active operation. A fair booking of business for this plant from railroads in the Southeast has been obtained, and with the Richmond plant of the Standard group, the corporation is better equipped than heretofore to participate in the car business in that territory.

Railroad purchases of freight equipment for 1929 more than doubled the 1928 figures and purchases of passenger equipment were also somewhat larger than in 1928, with the result that the earnings of $6,161,892 from the manufacturing properties operated in 1929 represent an increase of about $3,238,000 or 111 per cent over the 1928 results. Continued good manufacturing earnings are in prospect for the first half of 1930, as the manufacturing subsidiaries, both those operated in 1929 and those acquired as of March 1, 1930, have larger bookings than at this time last year.

THE PULLMAN COMPANY—TRAFFIC AND OPERATING STATISTICS

Comparative Statement for Years Ended December 31

Item	1925	1926	1927	1928	1929
Cars Owned	8,814	8,952	9,068	9,248	9,529
Cars Operated	8,238	8,639	8,689	8,631	8,842
Car Miles	1,043,663,099	1,112,967,022	1,140,476,049	1,153,889,647	1,206,767,059
Revenue Passengers:					
Berth	22,470,751	22,658,191	22,042,093	21,310,891	21,008,719
Seat	13,055,052	13,415,020	13,155,085	12,613,029	12,425,549
Total	35,525,803	36,073,211	35,197,178	33,923,920	33,434,268
Revenue Passenger Miles	14,017,394,915	14,407,455,160	14,096,775,086	13,937,849,095	14,058,525,111
Revenue from Cars	$81,490,323	$83,191,087	$82,250,940	$82,249,127	$83,840,812
Expenses	$68,967,083	$73,638,331	$71,891,743	$71,311,068	$74,655,613
Net Revenue from Cars	$12,523,240	$ 9,552,756	$10,359,197	$10,938,059	$ 9,185,199
Traffic Averages:					
Average Revenue per Car Operated	$9,891.52	$9,629.94	$9,466.64	$9,529.50	$9,482.32
Average Revenue per Passenger	$ 2.29	$ 2.31	$ 2.34	$ 2.42	$ 2.51
Average Net Revenue per Passenger	$ 0.35	$ 0.26	$ 0.29	$ 0.32	$ 0.27
Average Net Revenue per Car per Day	$ 4.16	$ 3.03	$ 3.27	$ 3.46	$ 2.85
Average mileage per car operated	126,683	128,834	131,263	133,691	136,484
Average journey per passenger (miles)	395	399	401	411	420
Average miles per car per day	347	353	360	365	374
Average loading per car (passengers)	13.43	12.95	12.36	12.08	11.65

Obituary

Charles Ffolliott, chairman of the board of directors of A. Guthrie & Co., Inc., St. Paul, Minn., died in that city on March 22 at the age of 78 years. Mr. Ffolliott, who was a native of Ireland, had been engaged in railway construction work for 49 years. Immediately after he came to Canada from Ireland he was employed by the contractor on the construction of a section of the Canadian Pacific in Manitoba. In 1887 he joined the forces of a contractor who was engaged in the construction of the Great Northern west from Minot, N. D., through North Dakota and Montana. With Archibald Guthrie Mr. Ffolliott formed A. Guthrie & Co. in 1896 and for the following 17 years he assumed personal charge of all operations of the company, a period during which it constructed 2,500 miles of railroad for the Great Northern, the Northern Pacific and the Chicago, Burlington & Quincy. He served as president of the company from 1913 to 1923 and had been chairman of the board since the latter date. Mr. Ffolliott is credited with the development of an early track laying machine and a mechanical tie bucker designed for attachment to the machine. Mr. Ffolliott was also one of the organizers of the Associated General Contractors of America.

D. P. Thompson, assistant to the president in charge of operations of the Inland Steel Company, Chicago, died at Miami Beach, Fla., on March 24 from pneumonia. He was born on August 3, 1880, at Newcastle, Pa., and after graduating from Andover Academy and Yale University, entered the employ of the Republic Iron & Steel Company. Later he became president of the Sharpesville Furnace Company, Sharon, Pa., and in 1912 entered the employ of the Inland Steel Company.

D. P. Thompson

Trade Publications

Toncan Iron Pipe.—A 32-page booklet featuring Toncan iron pipe for various classes of service has been issued by the Republic Iron & Steel Company, Youngstown, Ohio.

Clamshell Buckets.—The Hayward Company, New York, has issued two bulletins Nos. 654 and 700. The first of these deals with the Hayward Class K digging clamshell buckets, while the latter describes and illustrates the Hayward line of electric motor buckets.

Armco Plates.—The American Rolling Mill Company, Middletown, Ohio, has issued a 20-page booklet entitled "Pure Iron Plates for Long Service," which should be of interest to users of light, medium and heavy gage plates.

Construction

BOSTON & ALBANY—NEW YORK, NEW HAVEN & HARTFORD.—Through the Boston Terminal Company, a jointly owned subsidiary, these two companies have awarded to the Sawyer Construction Company, Boston, Mass., the general contract for alterations and improvements to the South station, Boston. The work, which is now in progress, includes the removal of the exisiting train shed, the erection of butterfly type shelters for the train platforms, the closing in of the concourse along the line of the present train gates and additional improvements to the concourse. The total cost of the project, of which the New Haven is to pay the major part, is approximately $1,500,000.

CANADIAN NATIONAL.—A contract for the clearing of the right of way, grading and installation of culverts for the construction of a branch line on Lulu Island, near New Westminster, B. C., has been awarded to the Campbell Construction Company, Ltd., Calgary, Alta. The total length of the railroad will be 29 miles, and with the construction of a bridge over the north arm of the Fraser river it will involve an expenditure of about $2,000,000.

CHESAPEAKE & OHIO (Levisa River).—An item which appeared recently in this column concerning the construction of a branch between Millard, Ky., and the Kentucky-Virginia state line was in error in that no contract has yet been awarded for this project.

CHESAPEAKE & OHIO.—Within the last few weeks this company has authorized construction projects with a total estimated value of $5,333,100 and has awarded contracts to the amount of $1,021,700. The projects authorized, together with estimated costs, are as follows: Extension of five tracks in the westbound receiving yard at Russell, Ky., $53,700; extension of 10 tracks in the westbound classification yard at the same point, $583,000; the construction of a new coal pier at Newport News, Va., $2,210,000; the rebuilding of arch bridge No. 4412 at Winifrede Junction, W. Va., $84,500; the rebuilding of the existing arch over Rush creek at Marmet, W. Va., $72,300; the rebuilding of an arch culvert over Lens Creek, East Marmet, W. Va., $85,500; changes in arch deck approaches of bridge No. 4855 at Milton, W. Va., $34,200; rebuilding of deck and arch approaches of bridge No. 4916 at Ona, W. Va., $25,000; the construction of a water station at Robbins, Ohio, $52,900; the construction of a center siding to hold 150 cars at the same point, $160,000; the construction of sidings and structures, and minor changes necessary to obtain proper clearances from Russell, Ky., to Parson, Ohio, $30,000, and the construction of a 150-car center siding at Marshall, Ohio, $104,000. Bids were received on March 12 for a previously authorized extension of westbound main and passing tracks at East Alleghany, Va., at a cost of $178,000 and on March 15 for the enlargement of the Alleghany tunnel at Alleghany, Va., at a probable cost of $1,660,000. Contracts have been awarded to Haley, Chisholm & Morris, Charlottesville, Va., for the construction of the west leg of a wye track at White Oak Junction, W. Va., at an approximate cost of $81,000, authorization for which was reported in the *Railway Age* of March 1, and for the extension of tracks in the Russell, Ky., yards, as noted above; to Langhorne & Langhorne, Huntington, W. Va., for the construction of 150-car center sidings at Robbins, Ohio, and Marshall, as mentioned above; and to the Graver Corporation, East Chicago, Ind., for the construction of a 358,000-gal. steel water tank at Hinton, W. Va., at a cost of $40,000. This tank is to be part of a new water treating plant, authorization for the construction of which was also reported in the *Railway Age* of March 1

CHICAGO & NORTH WESTERN.—A contract for clearing the right of way and grading for the construction of a 5.6-mile extension to its Gogebic branch line in western Michigan has been awarded to the Bonifas Lumber Company, a subsidiary of the Kimberly-Clark Corporation, Neenah, Wis. Track laying will be undertaken by company forces. The total cost of the extension is estimated at $164,000. A contract for the alteration of the power house at California avenue, Chicago, at a cost of about $30,000, has been let to the Harmon Engineering Company, Chicago. A contract for the rebuilding of highway and street grade crossings between Des Plains, Ill., and Barrington, 15 miles, following the construction of a third main track, has been awarded to Milburn Brothers, Mount Prospect, Ill.

ERIE.—Contracts for the construction of two new reinforced concrete bridges have been awarded to James S. McCormick, Easton, Pa., one over one of the main highways at Lanesboro, Pa., and the other over Canawacta Creek. The Lanesboro bridge, which was noted in the *Railway Age* of March 22, will have a total length of 350 ft. and will consist of seven arches, a center arch of 120 ft. across the main highway, and three 20 ft. arches on either side of the main span. The total height of the bridge, which will carry two tracks, will be 66 ft. A contract for a 2,000-ton capacity reinforced concrete coaling station at Susquehanna, Pa., has also been let to the Roberts & Schaefer Company, Chicago. The plant is designed to coal locomotives on four tracks and the facilities will include a sand plant with storage and drying facilities and two multiple track cinder-handling units.

ESQUIMALT & NANAIMO.—This company plans the expenditure of $200,000 for improvements along its lines during 1930, including the construction of improvements to the wharf at Nanaimo, B. C., at a cost of $36,000.

NATIONAL OF MEXICO.—Pascual Ortiz Rubio, president of the Mexican Republic, has revived the project for the construction of a railroad which would link the Tehuantepec National, extending between Puerto Mexico, Ver. C., and Salina Cruz, Oax., with the United Railways of Yucatan, about 450 miles. Several years ago when a preliminary survey was made by a British concessionnaire it was estimated that the cost of constructing the railroad would be approximately $16,000,000. The proposed route would traverse a country of mountains and tropical jungles, necessitating the construction of numerous bridges.

NEW YORK CENTRAL-ERIE.—Elimination of 17 grade crossings in Dunkirk, N. Y.—two on the Erie and 15 on the New York Central—has been directed by the Public Service Commission of New York. The work will cost approximately $3,500,000 and is the third largest elimination project to be ordered by the commission, ranking second in scope and cost only to those at Syracuse, N. Y., and Elmira. The plan which has been finally adopted calls for the elimination of all crossings between Roberts road in the eastern part of Dunkirk and Brigham road in the western section of the city. Street undercrossings of the New York Central will be provided at Robin, Main and Swan streets, Park, Washington and Central avenues and Roberts and Brigham roads, while existing crossings at Deer, Leopard, Eagle, Dove, Plover and Third streets and Woodrow avenue are to be closed. Subway undercrossings will also be provided at the Roberts road and Main street crossings of the Erie. The elimination will be accomplished by removing the tracks from their present location on Third street to a private right-of-way just to the north, elevating the tracks about 18 ft. and supporting them with embankments, with or without concrete retaining walls as necessary. Work is to follow general plans submitted at former hearings by the New York Central, which company is also to prepare detailed plans, specifications and estimates of cost for the approval of the commission. The New York Central also contemplates the construction of a fifth track through the city, in addition to the three main and one siding tracks now in use between Roberts and Brigham roads.

OREGON ELECTRIC.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line of 30 miles from Eugene, Ore., to a point in Lane county, and a 10-mile branch.

TEXAS & PACIFIC.—This company plans to ask for bids about April 15 for the construction of a passenger station and an inbound freight and warehouse building at Fort Worth, Tex.

WESTERN PACIFIC.—This company has applied to the Interstate Commerce Commission for authority to construct an extension of 4.7 miles at Stockton, Calif., to reach a new deepwater terminal now under construction.

Annual Reports

Norfolk and Western Railway Company, Thirty-fourth Annual Report

ROANOKE, Va., March 18th, 1930.

To the Stockholders of the Norfolk and Western Railway Company:

Your Board of Directors submits the following report for the year which ended December 31st, 1929.

Mileage of Road and Track in Operation

	December 31st, 1929 Miles	December 31st, 1928 Miles	Increase or Decrease Miles
Main Line	1,543.75	1,542.67	Inc. 1.08
Branches			
Operated as second track	127.28	127.28	
Other branches	531.20	532.41	
	658.48	659.69	Dec. 1.21
Total miles	2,202.23	2,202.36	Dec. .13
Lines operated under lease	22.27	22.27	
Lines operated under trackage rights	15.60	15.60	
Total miles of road in operation	2,240.10	2,240.23	Dec. .13
Second track	623.33	620.75	Inc. 2.58
Third track	13.58	13.58	
Sidings and yard tracks	1,652.01	1,626.88	Inc. 25.13
Total miles of all tracks in operation	4,529.02	4,501.44	Inc. 27.58
Average miles of road operated	2,240.09	2,241.46	Dec. 1.37
Average miles of track operated	4,501.37	4,481.46	Inc. 19.91

The decrease in miles of road in operation was as follows:

Gilmerton Branch, retired	.53	
Spur to Betty Baker Mines, retired	.68	1.21
Less:		
C. C. C. & St. L. connecting track, Columbus, O., extended		1.08
Net decrease		.13

The Year in Brief

Following is a comparison of 1929 figures with those for 1928:

	1929	1928	Increase or Decrease
Revenue from freight	$108,351,498.62	$97,501,583.52	Inc. $10,849,915.10
Revenue from passengers	5,110,927.78	5,726,833.34	Dec. 615,905.56
Revenue from mail, express and miscellaneous	4,169,325.20	3,718,694.52	Inc. 450,630.68
Total Revenue from operation	$117,631,751.60	$106,947,111.38	Inc. $10,684,640.22
Maintenance of roadway and structures	$14,838,067.14	$15,475,724.65	Dec. $637,657.51
Maintenance of equipment	20,848,612.11	19,933,551.65	Inc. 915,060.46
Transportation expense	25,897,415.49	26,608,500.41	Dec. 711,084.92
Miscellaneous expense	4,467,152.42	4,503,919.00	Dec. 36,766.58
Total Expense of operation	$66,051,247.16	$66,521,695.71	Dec. $470,448.55
Net Revenue from operation	$51,580,504.44	$40,425,415.67	Inc. $11,155,088.77
Ratio of operating expense to operating revenue	56.15%	62.20%	Dec. 6.05%
Federal, state and local taxes	$10,300,000.00	$9,200,000.00	Inc. $1,100,000.00
Uncollectible revenue charges	34,158.32	7,271.30	Inc. 26,887.02
Net rental of equipment and joint facilities—Credit	2,961,850.19	2,985,913.57	Dec. 24,063.38
Net Railway Operating Income	$44,208,196.31	$34,204,057.94	Inc. $10,004,138.37
Other Income—mainly interest on investments—Net	2,577,092.62	1,489,903.62	Inc. 1,087,189.00
Gross Income from all sources	$46,785,288.93	$35,693,961.56	Inc. $11,091,327.37
Interest paid on bonds and equipment obligations	$4,998,827.62	$4,966,918.13	Inc. $31,909.49
Dividends on Adjustment Preferred stock —$4. per share	919,692.00	919,692.00	
Balance of Income	$40,866,769.31	$29,807,351.43	Inc. $11,059,417.88
Earned per share on average amount Common stock outstanding	29.08	21.27	Inc. 7.81
Dividends on Common stock—$12. per share in 1929—$10. per share in 1928	$16,874,536.00	$14,020,370.00	Inc. $2,854,166.00
Funded Debt outstanding at end of year	*$115,405,531.92	112,980,800.00	Inc. 2,424,731.92
Capital Stock outstanding at end of year	163,640,600.00	163,280,600.00	Inc. 360,000.00
Investment in Road and Equipment at end of year	437,551,950.69	426,175,929.83	Inc. 11,376,020.86

* Includes, by direction of Interstate Commerce Commission, $6,086,031.92 of bonds of City of Norfolk, Va., issued to provide funds to purchase land and construct Municipal Terminals at Norfolk, now under lease to Norfolk and Western Railway Company.

At the end of the year Funded Debt represented 41.36 per cent. of outstanding capital obligations, and Capital Stock 58.64 per cent.

Capital Stock

The aggregate amounts of Adjustment Preferred and Common capital stock authorized by the stockholders and issued, including 77 shares ($7,700) of Adjustment Preferred stock and 24 shares ($2,400) of Common stock held in the Company's treasury, were as follows:

	Authorized by Stockholders	Issued	
		Par Value	Shares
Adjustment Preferred stock	$23,000,000	$23,000,000	230,000
Common stock	250,000,000	140,650,700	1,406,507
Totals, December 31st, 1929	$273,000,000	$163,650,700	1,636,507
Totals, December 31st, 1928	273,000,000	163,290,700	1,632,907
Increase (all Common stock)		$360,000	3,600

The additional 3,600 shares of Common stock were issued in exchange for $360,000 Convertible 10 Year 6 per cent. Gold Bonds of 1919 surrendered for conversion.

Funded Debt

The aggregate Funded Debt actually outstanding was as follows:

	Dec. 31st, 1929	Dec. 31st, 1928	Increase or Decrease
Mortgage Bonds	$95,273,500.00	$95,265,500.00	Inc. $8,000.00
Convertible Bonds (conversion privilege expired)	436,000.00	845,300.00	Dec. 409,300.00
Equipment Trust Obligations	13,610,000.00	16,870,000.00	Dec. 3,260,000.00
City of Norfolk, Va., Municipal Obligations (See page 12)	6,086,031.92		Inc. 6,086,031.92
Totals	$115,405,531.92	$112,980,800.00	Inc. $2,424,731.92

Road and Equipment

The charges to Investment in Road and Equipment during the year were $11,376,020.86.

The investment in road, equipment and miscellaneous physical property on December 31st, 1929, was $442,926,414.51, of which $44,427,519.20 was provided by appropriations from income and surplus, as shown by the General Balance Sheet.

New equipment received during the year was as follows:

10 baggage and express cars, all steel.
5 baggage and mail cars, all steel.
10 box express cars, all steel (built at Roanoke Shops).
1,000 box cars, 100,000 lbs. capacity, all steel (built at Roanoke Shops).

[ADVERTISEMENT]

2,600 hopper cars, 115,000 lbs. capacity, all steel.
18 tool cars (built at Roanoke Shops).
1 spreader car (built at Roanoke Shops).
1 maintenance of way locomotive tender (built at Roanoke Shops).
6 maintenance of way camp cars (built at Roanoke Shops).
4 maintenance of way flat cars (built at Roanoke Shops).
1 floating pile driver.
7 automobile trucks and motorcycles.

Additions and Betterments to Way and Structures

233.88 miles of track were laid with 130-lb. rail, making a total of 1,513.54 miles of track now laid with this weight of rail.

278,630 cubic yards of stone and 33,619 cubic yards of prepared slag were used in standard ballasting on the main line.

The station at Bassett, Va., was enlarged. Three storage warehouses were constructed at Lambert Point, Va., and additional storage facilities were provided at Roanoke, East Radford and Pulaski, Va., Bluestone, W. Va., and Portsmouth, Ohio.

At Columbus, Ohio, the separation of grade crossings and elevation of tracks, including rearrangement and enlargement of Joyce Avenue Yard, was approximately 70 per cent. completed. It is expected that this work will be completed in the Fall of 1930.

Track scales of 200 tons capacity were installed at Hopewell and Shenandoah, Va.

A steel storage tank of 200,000 gallons capacity was erected at Dwight, Va. Service tanks of 50,000 gallons capacity were erected at Anawalt, Wilmore and Williamson, W. Va., and McDermott, Ohio, and a 25,000 gallon capacity tank at the Welch sub-station, W. Va.

Oil houses were constructed at Norfolk, Va., Williamson, Borderland and Delbarton, W. Va., and Berrys, Ohio. Lumber storage sheds were erected at Roanoke, Va., and Bluefield, W. Va. Roundhouse at Bluefield, W. Va., was extended. A sand tower was erected at Kenova, W. Va., and a car repair building at Hagerstown, Md. Section foremen's dwellings were provided at Crewe, Va., Williamson, W. Va., and Coal Grove, Ohio. A laborer's house was erected at Lockbourne, Ohio, and standard section tool houses were erected at Hagerstown, Md., and Matewan, W. Va. Ash hoists and coaling station at Columbus, Ohio, were extended.

High power transmission lines were built between Bedford and Villamont, Va., to improve automatic signal service and provide electricity for lighting of switch lamps and stations and operating pumps, also between Kenova, W. Va., and Portsmouth, Ohio, to replace old line. New signal pole line was constructed between West Virginia-Ohio State Line and Sciotoville, Ohio, replacing old line.

A reinforced concrete underpass was constructed at Grovedale and Dana Avenues, Cincinnati, Ohio, and a steel overhead bridge at Miner Station Road, Ohio. Honaker tunnel was lined with concrete for a distance of 40 feet.

Four grade crossings were eliminated during the year, one by construction of overhead bridge and three by change of road.

42 linear feet of new steel bridges were constructed, 2,492 linear feet of light steel bridges were replaced by standard steel structures, and 700 linear feet of light steel bridges were replaced with fit steel doubled.

Maintenance Expenditures

The charges to Maintenance of Way and Structures Accounts were as follows:

	1929	1928	Decrease	Per Cent.
Total Expenses	$14,838,067.14	$15,475,724.65	$637,657.51	4.12
Average per mile of road operated	6,623.87	6,904.31	280.44	4.06
Average per mile of track operated	3,296.34	3,453.28	156.94	4.54

The charges to Maintenance of Equipment Accounts were as follows:

	1929	1928	Increase or Decrease	Per Cent.
Total Maintenance of Equipment Expenses	$20,848,612.11	$19,933,551.65	I. $915,060.46	4.6
In which are included:				
Steam Locomotives: Repairs, retirements and depreciation	10,336,014.02	9,882,797.16	I. 453,216.86	4.6
Average per locomotive	12,823.84	11,401.08	I. 1,422.76	12.5
Average per 1000 locomotive miles	491.43	477.84	I. 13.59	2.8
Electric Locomotives (Double-units): Repairs, retirements and depreciation	313,220.60	298,422.02	I. 14,798.58	5.0
Average per locomotive	19,576.29	18,651.38	I. 924.91	5.0
Average per 1000 locomotive miles	573.70	624.47	D. 50.77	8.1
Freight Train Cars: Repairs, retirements and depreciation	6,746,914.37	6,324,628.38	I. 422,285.99	6.7
Average per freight car	143.31	133.09	I. 10.22	7.7
Average per 1000 tons one mile	.40	.42	D. .02	4.8
Passenger Train Cars: Repairs, retirements and depreciation	877,902.94	911,315.03	D. 33,412.09	3.7
Average per passenger car	1,836.31	1,862.37	D. 26.06	1.4
Average per 1000 passengers one mile	5.79	5.40	I. .39	7.2
Work Equipment: Repairs, retirements and depreciation	357,713.84	331,979.28	I. 25,734.56	7.8

There were in the shops undergoing and awaiting classified repairs at the close of the year 48 locomotives (24 of which needed only light repairs), or 6.1 per cent., 7 passenger cars, or 1.5 per cent., 345 freight and work equipment cars, or .7 per cent.

Traffic and Operating Revenue Comparisons

Comparison of traffic and operating revenue figures with those of the preceding year shows the following changes:

Number of passengers	2,442,141	*decreased*	*440.747*	*15.29* per cent.
Average haul of passengers	62.05 miles	increased	3.56 miles	6.09 "
Revenue from passenger fares	$5,110,927.78	*decreased*	*$615,905.56*	*10.75* "
Average rate per passenger per mile	3.373 cents	*decreased*	*.023 cents*	*.68* "
Revenue freight carried	59,712,795 tons	increased	5,659,319 tons	10.47 "
Average haul of freight	280.18 miles	increased	2.39 miles	.86 "
Revenue from freight transportation	$108,351,498.62	increased	$10,849,915.10	11.13 "
Average rate per ton per mile	648 cents	*decreased*	*.001 cents*	*.15* "
Average tons of revenue freight per train mile	1,605.05	increased	89.98 tons	5.94 "
Shipments of coal	47,909,881 tons	increased	5,597,622 tons	13.23 "
Shipments of coke	406,591 tons	increased	137,948 tons	51.35 "
Shipments of ore	486,604 tons	increased	43,377 tons	9.79 "
Shipments of pig and bloom iron	83,596 tons	*decreased*	*12,395 tons*	*12.91* "
Shipments of lumber	1,308,811 tons	*decreased*	*42,518 tons*	*3.15* "

Taxes

Accruals for taxes in the year amounted to $10,300,000, an increase of $1,100,000 over the previous year. This amount was made up of United States Government taxes, $4,900,000, and State, County and Municipal taxes, $5,400,000. United States Government taxes, notwithstanding a reduction in the corporation tax rate, were greater than in the previous year, due to a substantial increase in the earnings.

Relief and Pension Department

At the close of the year the Relief Fund had 21,231 members, equivalent to 78.62 per cent. of the total number of employees, an increase in the year of 240 members and an increase of 1.42 per cent. in ratio of members to employees. Of the employees eligible to membership in the Relief Fund 94.19 per cent. were members at the close of the year. The members of the Fund contributed during the year $759,968.27 and the Fund received additional income of $86,408.18 from interest and $170.04 from profit on securities matured. Against these total receipts of $846,546.49 death benefits aggregating $236,666.67 and sickness and accident disability benefits aggregating $418,466.75 were paid, leaving a balance of $191,413.07, which was added to the Fund's credit balance, now standing at $2,103,437.06, comparing with $1,912,023.99 on December 31st, 1928. In the same period your Company paid the operating expenses of the Fund amounting to $137,988.23.

At the close of the year there were 736 employees on the Pension Roll, a net increase of 35 in the year, with an average pension of $625.44 per annum, compared with an average pension of $618.60 per annum at the close of 1928.

Pension Reserve Fund

In December, 1929, your Directors appropriated from Surplus the sum of $662,133.68, which was paid over to the Trustees of the Pension Reserve Fund, this amount being figured from actuarial tables as sufficient to take care of pensions to the 122 employees retired in the year 1929 so long as they may live. The appropriations to date for retired employees total $4,017,-

[Advertisement]

NORFOLK AND WESTERN RAILWAY COMPANY

ASSETS

				Comparison with Dec. 31st, 1928	
INVESTMENTS:					
Investments in Road and Equipment:					
Road		$309,337,317.12	.....	I.	$9,212,298.67
Equipment owned	$88,694,467.83				
Equipment in Trust	39,520,165.72	128,214,633.57	.....	I.	2,163,722.19
			$437,551,950.69		
Sinking Funds. (Account City of Norfolk bonds, see foot-note page 19)		.....	726,955.61	I.	726,955.61
Deposits in lieu of mortgaged property sold		.....	32,985.97	I.	2,186.63
Miscellaneous Physical Property		.....	5,374,463.82	I.	1,393,938.25
Investments in Affiliated Companies:					
Stocks: Pledged	$647,740.00				
Unpledged	1,522,041.42	$2,169,781.42	.....	I.	50,440.00
Bonds		457,595.25	.....	D.	140,857.25
Advances		9,666,720.76	.....	I.	3,235,464.83
			12,294,097.43		
Other Investments:					
Stocks		$25,000.00			
Bonds		47,525,958.19	.....	I.	16,451,238.15
			47,550,958.19		
Total Investments		.....	$503,531,411.71		
CURRENT ASSETS:					
Cash:					
In Treasury	$5,258,420.93				
In Transit	324,725.53				
Held in Trust for Relief Fund	47,132.52				
		$5,630,278.98	.....	D.	1,135,412.04
Special Deposits		591,895.75	.....	I.	26,180.75
Loans and Bills Receivable		28,968.23	.....	D.	11,299.18
Traffic and Car-Service Balances Receivable		1,713,636.76	.....	I.	15,202.65
Net Balances Receivable from Agents and Conductors		275,989.72	.....	I.	12,301.92
Miscellaneous Accounts Receivable		1,229,512.38	.....	I.	350,674.05
Material and Supplies		7,665,854.65	.....	D.	2,552,867.26
Interest and Dividends Receivable		227,127.82	.....	I.	87,505.74
Other Current Assets		49,719.88	.....	I.	2,569.38
Total Current Assets			17,412,984.17		
DEFERRED ASSETS:					
Working Fund Advances		$14,064.52	.....	D.	89.20
Norfolk and Western Railway Company and Pocahontas Coal and Coke Company Joint Purchase Money Mortgage Bonds		12,453,000.00	.....	D.	46,000.00
Cost of Securities held in trust for Relief Fund		2,056,304.54	.....	I.	231,104.77
Other Accounts		80,500.00	.....	D.	11,850.00
Total Deferred Assets		.....	14,603,869.06		
* Trustees for Norfolk and Western Pension Reserve Fund		.....	.....	D.	2,537,006.36
UNADJUSTED DEBITS:					
Rents and Insurance Premiums paid in advance		$96,451.34	.....	D.	27,564.08
Discount on Funded Debt		1,389,013.30	.....	D.	149,634.23
Other Unadjusted Debits		5,252,506.10	.....	D.	321,483.87
Securities Issued or Assumed—Unpledged.					
Par Value of holdings at close of year	$43,100.00				
Total Unadjusted Debits		.....	6,737,970.74		
			$542,286,235.68	I.	$26,627,720.12

* Taken out of the Company's accounts by authority of the Bureau of Accounts of the Interstate Commerce Commission.

366.95. In 1929 the fund was credited with interest and amortization aggregating $117,571.93 and was charged with $450,717.14 paid to the Railway Company in reimbursement for pensions paid during the year and with taxes amounting to $40.00. At the close of the year the Trustees held securities of a face value of $3,051,000, having a book value of $2,861,658.28, and $666.34 in cash.

Pocahontas Coal and Coke Company

Earnings for the year 1929 from royalties on total output of coal mined and coke manufactured were $1,731,576.71 and from other sources $117,654.74, making total earnings of $1,849,231.45 compared with $1,632,893.57 in 1928. Operating expenses were $171,445.52 and taxes $177,843.91, leaving net earnings of $1,499,942.02. Sinking fund and interest on funded debt, with other deductions, resulted in net income of $543,534.67, an increase of $226,916.21 over that of the preceding year. The output of coal from the Company's leased property in 1929 was 16,896,531 gross tons and of coke 13,967 gross tons.

Under the sinking fund provision of the Pocahontas Coal Lands Purchase Money First Mortgage, dated December 2nd, 1901, $422,971.95 accrued from royalties on coal mined during the calendar year 1929. From the beginning of the operation of the sinking fund in 1906 to December 31st, 1929, the accruals from royalties have aggregated $6,913,615.63 and those from sales of lands $227,324.79, a total of $7,140,940.42 applicable to the purchase and retirement of mortgage bonds. Through this fund $7,547,000 of bonds had been purchased and cancelled to December 31st, 1929, and $452,000 subsequent thereto. The outstanding bonds on December 31st, 1929, were $12,453,000 and at the date of this report $11,997,000 out of original issue of $20,000,000.

A final payment of $315,000 has been made on account of indebtedness incurred in previous years to meet fixed charges.

Lease-and-Purchase of Municipal Terminals at Norfolk, Virginia

The Municipal Terminals and Grain Elevator at Sewalls Point, Norfolk, Va., were acquired by your Company by Contract of Lease-and-Purchase, dated April 25th, 1929, and approved by the Interstate Commerce Commission June 12th, 1929, as being required by public convenience and necessity.

The Terminals consist of 300 acres of land on the water front of Hampton Roads, service tracks, concrete bulkheads, a modern grain elevator, two merchandise piers and the necessary facilities for the transfer of grain and freight between vessels and the railroad.

The cost of the facilities to the City of Norfolk was approximately $5,461,000, and this was the price to be paid by your Company distributed through twenty-three years in annual payments terminating May 1st, 1952—with interest on the deferred payments—at which time your Company will be entitled to a conveyance of the terminal property from the City. The City of Norfolk has bonds outstanding on account of these expenditures to the par amount of $5,461,000. These bonds were not assumed by your Company, nor are they a lien upon the terminals. But by direction of the Bureau of Accounts of the Interstate Commerce Commission they have been included in the statement of your Company's Funded Debt as has also the amount held by the Sinking Fund Commissioners of the City of Norfolk at the date of execution of the contract of lease-and-purchase, viz., $625,031.92.

The Terminals are served directly by a short line of railroad owned and operated by the Norfolk and Portsmouth Belt Line

[ADVERTISEMENT]

CONDENSED GENERAL BALANCE SHEET, DECEMBER 31st, 1929

LIABILITIES

			Comparison with Dec. 31st, 1928	
CAPITAL STOCK:				
Adjustment Preferred	$23,000,000.00			
Held in Treasury	7,700.00			
		$22,992,300.00		
Common	$140,650,700.00			
Held in Treasury	2,400.00			
		140,648,300.00	I.	$360,000.00
Total Capital Stock		$163,640,600.00		
LONG TERM DEBT:				
Mortgage Bonds	$95,301,500.00			
Held in Treasury	28,000.00			
		$95,273,500.00	I.	8,000.00
Convertible Bonds	$441,000.00			
Held in Treasury	5,000.00			
		436,000.00	D.	409,300.00
Equipment Obligations		13,610,000.00	D.	3,260,000.00
* Miscellaneous Obligations		6,086,031.92	I.	6,086,031.92
Total Long Term Debt			115,405,531.92	
CURRENT LIABILITIES:				
Traffic and Car-Service Balances Payable		$663,618.07	D.	92,254.01
Audited Accounts and Wages Payable		3,354,297.57	D.	152,611.42
Miscellaneous Accounts Payable		426,981.81	I.	199,431.81
Relief Fund (Cash held in Trust)		47,132.52	D.	19,691.70
Interest Matured Unpaid		41,874.50	I.	2,200.50
Dividends Matured Unpaid		19,729.25	I.	6,372.75
Funded Debt Matured Unpaid		27,000.00	I.	21,000.00
Unmatured Dividends Declared		229,923.00		
Unmatured Interest Accrued		1,576,180.85	I.	23,690.85
Total Current Liabilities			6,386,737.57	
DEFERRED LIABILITIES:				
Cost of Securities Purchased for Relief Fund		$2,056,304.54	I.	211,104.77
Other Accounts		281,785.86	I.	210,549.10
Total Deferred Liabilities			2,338,090.40	
JOINT LIABILITIES:				
Norfolk and Western Railway Company and Pocahontas Coal and Coke Company Joint Purchase Money Mortgage Bonds			12,453,000.00	D. 436,000.00
UNADJUSTED CREDITS:				
Tax Liability		$7,345,791.93	I.	852,152.63
Insurance and Casualty Reserves		223,347.56	I.	22,548.46
Accrued Depreciation—Road		11,472,710.74	I.	524,530.05
Accrued Depreciation—Equipment		32,507,623.82	I.	548,334.02
Accrued Depreciation—Miscellaneous Physical Property		1,226,806.79	I.	172,071.45
Other Unadjusted Credits		2,365,892.26	D.	751,996.22
Total Unadjusted Credits			55,142,173.10	
CORPORATE SURPLUS:				
† Norfolk and Western Pension Reserve (*Held by independent Trustees.*)			D.	2,537,006.36
Sinking Fund Reserves			120,040.57	I. 120,040.57
Additions to Property through Income and Surplus:				
Road	$21,122,342.93			
Equipment	23,305,176.27			
Total Appropriated Surplus		$44,427,519.20	I.	31,925.27
Profit and Loss—Balance		142,372,542.92	I.	24,886,595.68
Total Corporate Surplus			186,800,062.12	
		$542,286,235.68	I.	$26,627,720.12

* Bonds of City of Norfolk, Va., issued to provide funds to purchase land and construct Municipal Terminals at Norfolk, now under lease to Norfolk and Western Railway Company, included in Long Term Debt by direction of Bureau of Accounts of Interstate Commerce Commission.

† Taken out of the Company's accounts by authority of the Bureau of Accounts of the Interstate Commerce Commission.

Railroad Company, which connects with your Company's line and with seven other lines.

The expectation is that these Terminals can be made increasingly useful to the public and profitable to your Company as the business of the Port of Norfolk increases.

Big Sandy and Cumberland Railroad Company

The construction and reconstruction of the line of the Big Sandy and Cumberland Railroad, which commenced in 1928, has progressed to the extent that grading has been substantially completed between Devon, W. Va., and Hurley, Va., and track will be laid upon this portion of line early in 1930. Grading along Levisa River has also been completed and the line on Home Creek will be ready for track in the Fall. It is expected that the line from Devon to Grundy, via the Home Creek Branch, will be completed and in operation by December 31st, 1930.

By order of the Interstate Commerce Commission, issued November 14th, 1929, your Company has been authorized to acquire the railroad, property and franchises of the Big Sandy and Cumberland Railroad Company, including the acquisition, by lease, of the Knox Creek Railway Company. Steps will be taken under this authority.

Guyandot and Tug River Railroad Company

Construction on the Guyandot and Tug River Railroad, from Wharncliffe, on your Company's line, to Gilbert, W. Va., a distance of 10.5 miles, authorized by the Interstate Commerce Commission on July 23rd, 1928, has continued during the year. Grading is approximately 30 per cent. completed and one mile of track has been laid from Wharncliffe. It is expected that the line will be completed in 1931.

Industries

During the year there were located on your Company's lines one hundred and sixteen new industries with a capitalization of $22,442,000, and employing 6,136 persons.

There were also eighty-four additions to established plants, costing $16,545,500, and employing 7,057 persons. Three established plants were merged with other organizations, and one plant, destroyed by fire, was rebuilt with an investment of $1,875,000 and employment of 420 persons.

Obituary

Nicholas D. Maher, a Director of this Company from September 5th, 1912, to June 1st, 1918, and from March 1st, 1920, to the date of his death, died at his home in Roanoke, Virginia,

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on September 24th, 1929, after a short illness, at the age of seventy-five. Mr. Maher began his railroad career in 1871 and came to the Norfolk and Western Railroad Company on June 1st, 1883, as Chief Clerk in the General Superintendent's office. Subsequently he rose through various positions to that of President, to which he was elected January 1st, 1918, and continued until retirement under the Pension Regulations of the Company April 30th, 1924, with the exception of the period from June, 1918, to February, 1920, when he served as Regional Director of the Pocahontas Region for the Railroad Administration.

Mr. Maher's long service and varied experience gave him an unusual grasp of railroad operation and his familiarity with the affairs of the Company made him a most valuable Executive and Director. His high character and cheerful personality won for him the esteem and sincere friendship of his fellow Directors, while all associated with him admired his sanity of judgment, his patience, open mindedness and keen sense of justice.

Changes in Board of Directors

At the meeting of the Board of Directors held April 22nd, 1929, the vacancy in the Board occasioned by the death of Samuel Rea was filled by the election of Elisha Lee, of Philadelphia. At the meeting of the Board of Directors held October 22nd, 1929, the vacancy in the Board occasioned by the death of N. D. Maher was filled by the election of James K. Norfleet, of Winston-Salem, N. C.

The Board expresses to the officers and employees its appreciation of the fidelity and capability with which they have served the Company throughout the year.

By order of the Board of Directors,

A. C. NEEDLES,
President.

Canadian Pacific Railway Company

Forty-Ninth Annual Report

OF THE DIRECTORS OF THE CANADIAN PACIFIC RAILWAY COMPANY. YEAR ENDED DECEMBER 31, 1929.

To the Shareholders:

The accounts of the Company for the year ended December 31, 1929, show the following results:—

Gross Earnings		$209,730,955.43
Working Expenses (including all taxes)		166,586,411.63
Net Earnings		$ 43,144,543.80
Special Income		15,232,220.04
		$ 58,376,763.84
Deduct Fixed Charges		16,149,002.51
Surplus		$ 42,227,761.33
Contribution to Pension Fund		750,000.00
		$ 41,477,761.33
From this there has been charged a half-yearly dividend on Preference Stock of 2 per cent., paid October 1, 1929	$2,331,151.35	
And three quarterly dividends on Ordinary Stock of 2½ per cent. each, paid June 29, 1929, October 1, 1929, and December 31, 1929	22,500,000.00	
		24,831,151.35
		$ 16,646,609.98
From this there has been declared a second half-yearly dividend on Preference Stock of 2 per cent., payable April 1, 1930	$2,343,638.42	
And a fourth quarterly dividend on Ordinary Stock of 2½ per cent., payable April 1, 1930	8,250,000.00	
		10,593,638.42
Leaving net surplus for the year		$ 6,052,971.56

Special Income for Year Ended December 31, 1929

Net Revenue from Investments and Available Resources, Exhibit "C"	$ 3,284,587.50
Interest on Deposits, and Interest and Dividends on Other Securities	4,119,150.23
Net Earnings Ocean and Coastal Steamship Lines	3,219,638.08
Net Earnings Commercial Telegraph and News Departments, Hotels, Rentals and Miscellaneous	4,608,844.23
	$ 15,232,220.04

Earnings and Expenses

The working expenses for the year, including all taxes, amounted to 79.43 per cent. of the gross earnings, and the net earnings to 20.57 per cent., as compared with 77.43 per cent. and 22.57 per cent. respectively in 1928. Excluding taxes, the ratio of working expenses to gross earnings was 77.00 per cent., and in 1928, 74.79 per cent.

The gross earnings from railway operations for the year were less by $19,308,342 than those of the previous year, freight earnings alone decreasing $17,910,255.

Working expenses were decreased by $10,758,434, resulting in net earnings of $43,144,544, or a decrease from the previous year of $8,549,908.

The reduction in gross earnings is more than accounted for by the decreased grain yield in Western Canada and the retarded movement of the crop, the shrinkage in revenue on the commodity "Grain and Grain Products" being $20,933,471.

The Company was able to meet the unusual conditions which existed during the last four months of the year in a satisfactory way and without lessening the physical efficiency of the property.

Special Income

The Special Income was $2,544,536.26 in excess of that for the previous year, the principal increases being in the items "Interest on Deposits, and interest and dividends on other securities," "Net Earnings Ocean and Coastal Steamship Lines," and "Hotels."

Land Sales

The sales of agricultural lands for the year were 408,506 acres for $5,058,675.14, being an average of $12.38 per acre. Included in this area were 34.785 acres of irrigated land which brought $41.93 per acre, so that the average for the balance was $9.63 per acre.

Issue of Securities

During the year, the Company issued and sold $30,000,000 25-year five per cent. Collateral Trust Gold Bonds, secured by pledge of $37,500,000 four per cent. Consolidated Debenture Stock; $30,000,000 five per cent. Equipment Trust Certificates, maturing July 1, 1944, and £2,500,000 four per cent. Preference Stock.

Issue of Additional Common Stock

Pursuant to the authorization given at the annual meeting of the shareholders in May, 1926, your Directors decided to issue 350,000 shares of additional Ordinary Capital Stock, of which 300,000 were offered for subscription by the shareholders at the price of $170.00 per share, and 50,000 were offered for subscription by the officers and employees at the same price. The offer to both shareholders and employees was fully taken advantage of and the few shares unsubscribed for will be disposed of in the market as conditions warrant such disposal.

Hotels

The operation of the Company's hotels resulted in net earnings of $1,601,696, an increase of $649,619 over the earnings of the previous year, due in part to the opening of the Royal York Hotel in Toronto, the earnings of which during the six months it has been in operation have been eminently satisfactory. This hotel has attracted many conventions and tourists and the demand for accommodation has been such as to warrant your Directors in proceeding with the extension, the foundations of which were laid during the original construction of the hotel, and which will add one hundred and sixty-four rooms to the building.

The additions to the Empress Hotel at Victoria and the Palliser Hotel at Calgary, previously authorized by you, have been completed and your Directors have every confidence that the earnings of these hotels will thereby be substantially increased.

Your Directors have approved the construction by your subsidiary, the Dominion Atlantic Railway Company, of a new hotel at Kentville, Nova Scotia, and, jointly with the Eastern Steamship Company, of a moderate sized hotel at Yarmouth. The success of the hotel at Digby, opened for business in June of last year, gives every assurance of the successful operation of the hotels at Kentville and Yarmouth. Increasing tourist

[ADVERTISEMENT]

business to Nova Scotia in itself justified the provision of modern hostelries.

Canadian Pacific Steamships Limited

The net operating results of your combined Atlantic and Pacific fleets for the year showed a moderate increase, in spite of a decrease in profits from the Pacific fleet due to the unsatisfactory business which prevailed in the Far East. The Atlantic fleet was augmented during the year by the commissioning of the "Duchess of Richmond" and the "Duchess of York." The work of re-engining and re-conditioning the "Empress of Canada" was completed and she has resumed her place in the service between Vancouver and the Orient.

Casualties to the vessels of the fleet during the year, with the exception of the grounding of the "Duchess of Richmond" at Saint John and the "Empress of Canada" when entering Victoria, were of a minor nature and did not interfere to any appreciable extent with sailing schedules.

As has been the custom during the past few years, the larger vessels of the Atlantic fleet were utilized during the winter months in cruise work with satisfactory results notwithstanding the intensive competition which is now met in these services.

The voyage results of the ships engaged in freight service were disappointing due to the curtailment of the grain movement and the disturbance in ocean freight rates.

During the year, the S.S. "Montnairn" and the S.S. "Marloch" of the Atlantic fleet and the S.S. "Princess Beatrice" of the Pacific Coast fleet, were sold.

Saint John-Digby Service

In order to provide a larger and faster vessel for the service between Saint John and Digby, which your Directors consider necessary to meet the growing traffic between these points, a contract has been entered into with William Denny and Brothers for the construction at a cost of £224,940 of a twin screw, oil-burning, passenger and cargo steamship, 332 feet in length, 50 feet 6 inches in breadth and 18 feet in depth, with a speed of about 19 knots, to be delivered in August of this year.

Your approval of the necessary expenditure and the issue of Consolidated Debenture Stock to defray the cost of the vessel will be asked.

Branch Lines

The construction of new branch lines in Western Canada, previously authorized by the Shareholders, was proceeded with, 325 miles being graded, 261 miles of track laid and 327 miles ballasted on these new lines.

In pursuance of the policy of the Company of providing extensions of its system to assist in the development of various portions of the Dominion, your Directors have applied to Parliament for authority to construct the following branch lines:—

1. From Tempest on the Taber Subdivision southeasterly to a point near Chin Coulee in the Province of Alberta;
2. From Dunelm on the Swift Current Southeasterly Branch southwesterly and westerly to a point near Stone Post Office in the Province of Saskatchewan;
3. From Duval on the Pheasant Hills Branch easterly to a point near Arbury Post Office in the Province of Saskatchewan;
4. From a point near Hamlin on the joint section between North Battleford and Glenbush to Shellbrook in the Province of Saskatchewan;
5. From a point on Isle Perrot east of Vaudreuil to Windmill Point in the Province of Quebec;
6. From a point east of Belair on the Quebec Subdivision to Wolfe's Cove in the Province of Quebec.

Your approval will be asked for proceeding with the construction, as conditions warrant, of the undermentioned portions of the branch lines and extensions for which Parliamentary sanction has already been received or is being applied for as above referred to, and for the issue and sale of a sufficient amount of Consolidated Debenture Stock to meet the expenditure therefor:—

1.	Acme Northwesterly, Mileage 25 to 28	3	Miles
2.	Crossfield Northwesterly	30	"
3.	Cutknife-Carruthers	3.5	"
4.	Dunelm Southwesterly	25	"
5.	Rock Glen Westerly	25	"
6.	Prince Albert—Lac la Biche, Mileage 50 to 90	40	"
7.	Asquith-Cloan, Mileage 28 to 45	17	"
8.	Sudbury Basin Branch	6	"
9.	Isle Perrot Branch	7	"
10.	Wolfe's Cove Branch	1.75	"

It is also proposed to extend, as conditions warrant, the Lacombe and North Western Railway from Thorsby to Le Duc, a distance of 20.5 miles.

Northern Alberta Railways

In accordance with the provisions of the agreement for the purchase of the Alberta Government Railways approved at the last annual meeting, the Company and the Canadian National Railway Company entered into joint possession of these undertakings on July 1, 1929. For the purpose of convenient joint ownership and operation, the Northern Alberta Railways Company was incorporated by Parliament at its last session and the agreement of purchase was assigned to the new Company. By the same Act the Company and the Canadian National Railway Company were authorized to acquire its stock and securities in equal shares, and, subject to your approval, the Company was authorized to issue Consolidated Debenture Stock for the purpose of acquiring its share of any bonds so issued. Resolutions approving the assignment of the purchase agreement to the Northern Alberta Railways Company, and authorizing the Directors to issue Consolidated Debenture Stock for the purpose of acquiring one-half of the bonds of that Company will be submitted for your consideration.

In fulfilment of the agreement of purchase and to meet the traffic needs of the Peace River District, your Directors recommend the commencement during 1930 of extensions of the Northern Alberta Railways from Hythe to Rolla, a distance of about fifty miles, and from Fairview westerly, a distance of fifteen miles.

Minneapolis, St. Paul & Sault Ste. Marie Railway Company

The results of the operations of your subsidiary the Minneapolis, St. Paul and Sault Ste. Marie Railway Company, including the Wisconsin Central, were disappointing. Up to September 1 the earnings were satisfactory, but the grain crop in the district served by the lines of the Soo Company was not equal to that of 1928 and its movement to market was very much retarded, resulting in loss in grain earnings of $2,360,000.

The properties of the Soo Company have been well maintained, and business conditions throughout the territory served by its lines are, as a whole, fairly good. The uncertainty which exists in respect of the marketing of grain is, however, holding back the improvement in the farm situation.

The financial position of the Company is strong.

Your guarantee of interest has been endorsed on $12,106,000 principal amount of five and a half per cent. First Refunding Mortgage Bonds, Series "B," of the Minneapolis, St. Paul and Sault Ste. Marie Railway Company, dated July 1, 1929, and maturing July 1, 1978, issued and sold by that Company for its capital requirements.

Algoma Eastern Railway

Your Directors have completed negotiations with the Board of the Algoma Eastern Railway Company for the acquisition of the Preferred and Common Stocks of that Company of the par value of three million dollars at the price of $110 per share for each class of stock.

The Algoma Eastern Railway extends from Little Current to Sudbury, a distance of 88 miles. It has long been a valuable traffic connection of your railway and your Directors believe that it will be a profitable addition to your property.

A resolution confirming the purchase will be submitted for your approval.

Lease of Midland Simcoe Railway

You will be asked to approve of a lease of the Midland Simcoe Railway which, with running rights held by this Company over a section of the Canadian National Railways, gives access from the Georgian Bay and Seaboard Line to industries in the Town of Midland.

Capital Expenditures

In anticipation of your confirmation, your Directors authorized capital appropriations, in addition to those approved at the last annual meeting, aggregating for the year 1929, $8,142,815, and ask vour approval of expenditures on capital account during the present year of $12,530,355. Of this amount the principal items are:—

Replacement and enlargement of structures in permanent form	$883,981
Additional stations, round houses, freight sheds and shops, and extensions to existing buildings	526,245
Tie plates, rail anchors, ballasting, ditching and miscellaneous roadway betterments	1,347,585
Replacement of rail in main and branch line tracks with heavier section	2,398,835

[Advertisement]

CANADIAN PACIFIC RAILWAY COMPANY

GENERAL BALANCE SHEET, DECEMBER 31, 1929

ASSETS

Property Investment:		
Railway, Rolling Stock Equipment, Lake and River Steamers and Hotels		$798,913,858.64
Ocean and Coastal Steamships, Exhibit "A"		100,992,262.28
Acquired Securities (Cost): Exhibit "B"		154,189,886.78
Advances to Controlled Properties and Insurance Premiums		17,925,657.51
Investments and Available Resources:		
Deferred Payments on Lands and Townsites	$57,139,595.94	
Provincial and Municipal Securities	792,721.29	
Miscellaneous Investments, Exhibit "C," Cost	27,456,565.72	
Assets in Lands and Properties, Exhibit "D"	67,678,547.45	
		153,067,430.40
Working Assets:		
Material and Supplies on Hand	$25,769,527.46	
Agents' and Conductors' Balances	6,125,879.64	
Net Traffic Balances	1,038,564.75	
Imperial, Dominion and United States Governments, Accounts due for Transportation, etc.	1,216,963.25	
Miscellaneous Accounts Receivable	10,490,522.77	
Cash in Hand	69,656,708.31	
		114,298,166.18
		$1,339,387,261.79

LIABILITIES

Capital Stock:			
Ordinary Stock		$330,000,000.00	
Payments by employees on Subscription to New Issue Ordinary Stock at $170		3,061,715.66	
Four Per Cent. Preference Stock		117,181,921.12	
			$450,243,636.78
Four Per Cent. Consolidated Debenture Stock	$354,044,882.08		
Less: Collateral as below*	77,500,000.00		
			276,544,882.08
Ten Year 5% Collateral Trust Gold Bonds (1934)*			12,000,000.00
Twenty Year 4½% Collateral Trust Gold Bonds (1946)*			20,000,000.00
Twenty-Five Year 5% Collateral Trust Gold Bonds (1954)*			30,000,000.00
Twenty Year 4½% Sinking Fund Secured Note Certificates (1944)	30,000,000.00		
Less: Purchased by Trustee and cancelled	7,414,300.00		
	22,585,700.00		
Less: Amount held by Trustee	243,958.04		
			22,341,741.96
Mortgage Bonds:			
Algoma Branch 1st Mortgage 5 per cent			3,650,000.00
Lacombe & Blindman Valley Railway 1st Mortgage 5 per cent			273,700.00
Current:			
Audited Vouchers		6,824,698.04	
Pay Rolls		3,929,328.86	
Miscellaneous Accounts Payable		3,357,807.25	
			14,111,834.15
Accrued:			
Rentals of Leased Lines and Coupons on Mortgage Bonds			1,104,519.70
Equipment Obligations.	$41,000,000.00		
Less: Balance on hand with Trustee	4,509,077.42		
			36,490,922.58
Reserves and Appropriations:			
Equipment Replacement		13,682,044.65	
Steamship Replacement		19,106,238.28	
Reserve Fund for Contingencies and for Contingent Taxes		23,298,668.79	
			56,086,951.72
Premium on Capital Stock Sold (Less Discount on Bonds and Notes)			73,050,982.72
Net Proceeds Lands and Townsites			79,358,206.61
Surplus Revenue from Operation			156,428,903.80
Special Reserve to Meet Taxes Imposed by Dominion Government			2,308,859.39
Surplus in Other Assets			105,392,120.30
			$1,339,387,261.79

E. E. LLOYD, Comptroller.

Auditors' Certificate.

We have examined the Books and Records of the Canadian Pacific Railway Co. for the year ending December 31, 1929, and having compared the annexed Balance Sheet and Income Account therewith, we certify that, in our opinion, the Balance Sheet is properly drawn up so as to show the true financial position of the Company at that date, and that the relative Income Account for the year is correct.

PRICE, WATERHOUSE & CO.,
Chartered Accountants (England).

Montreal, March 7, 1930.

Installation of automatic signals	335,500
Additional terminal and side track accommodation	323,101
Improving coaling and watering facilities	85,135
Mechanical Department, machinery at various points	253,120
Improvements in connection with telegraph service	2,016,647
British Columbia Coast Steamships	80,295
British Columbia Lake and River Steamers	12,000
Tunnel to False Creek Yards, Vancouver	500,000
Waterfront improvements, Toronto	1,530,000
Empress Hotel	450,000
Royal York Hotel	1,185,500

The balance of the amount is required for miscellaneous works to improve facilities and effect economies over the whole system.

Amendment to Company's Charter Respecting Par Value of Shares of Its Ordinary Stock

For some time your Directors have been considering the advisability of applying to Parliament for authority to reduce the par value of the Company's ordinary shares, but have deferred doing so because of the rather abnormal stock market conditions and excess of speculation which prevailed during the past few years. Now that these conditions have been changed, your Directors consider that an application for the appropriate amendment to the Company's Charter should be made, and, in consequence, the requisite notices have been given and petitions filed at Ottawa.

Your Directors are satisfied of the desirability from many standpoints of placing the Company's ordinary shares within the reach of investors of moderate means, and in view of the fact that over 97% of the Company's investments are in Canada, it would seem highly important that there should be more Canadian holders of its stock. The market value of the $100 shares has undoubtedly been a deterrent to their wider distribution.

If Parliament shall grant the requisite authority, your approval of a change in the par value from $100 to $25, which your Directors strongly recommend, will be asked.

Your Directors have considered it advisable to apply to Parliament for power to increase the number of Directors from 18 to 24.

Stock Holdings

The holdings of the Common and Preference Stocks of the Company in December, 1929, were distributed as follows:—

	Common	Preference	Com. & Pref. Combined
United Kingdom	42.90%	97.84%	58.63%
Canada	18.07%	.29%	12.98%
United States	32.68%	.64%	23.50%
Other Countries	6.35%	1.23%	4.89%

Change in Directorate

Mr. Robert C. Stanley, President of the International Nickel Company of Canada, has been elected a Director to fill the vacancy caused by the death of Mr. F. W. Molson.

Retiring Directors

The undermentioned Directors will retire from office at the approaching Annual Meeting. They are eligible for re-election.

Sir Charles Gordon, G.B.E.
Mr. Ross H. McMaster
Rt. Hon Reginald McKenna
Mr. James A. Richardson
Mr. W. J. Blake Wilson

For the Directors,

E. W. Beatty, *President.*

Montreal, March 10th, 1930.

[Advertisement]

Fourteenth Annual Report of the Wabash Railway Company
Year Ended December 31, 1929

To the Stockholders of the Wabash Railway Company:

The Board of Directors herewith submit an Income Account and Report of Operations for the year ended December 31, 1929:

	1929	1928	Increase Amount	Increase Per Cent	Decrease Amount	Decrease Per Cent
Average Mileage Operated	2,523.82	2,524.20			.38	.02
OPERATING INCOME:						
Railway Operating Revenues:						
Freight	$63,796,582.56	$58,840,270.65	$4,956,311.91	8.42		
Passenger	7,042,372.25	7,194,988.17			$152,615.92	2.12
Mail	1,318,496.07	853,779.83	464,716.24	54.43		
Express	1,759,485.20	1,553,661.48	205,823.72	13.25		
Miscellaneous	1,672,993.82	1,605,026.11	67,967.71	4.23		
Incidental	755,699.22	730,997.95	24,701.27	3.38		
Joint Facility	287,344.85	294,266.88			6,922.03	2.35
Total Railway Operating Revenues	$76,632,973.97	$71,072,991.07	$5,559,982.90	7.82		
Railway Operating Expenses:						
Maintenance of Way and Structures	$10,273,861.52	$9,496,663.03	$777,198.49	8.18		
Maintenance of Equipment	12,922,779.14	11,815,468.66	1,107,310.48	9.37		
Traffic	2,237,292.70	2,037,900.66	199,392.04	9.78		
Transportation—Rail Line	27,985,608.49	26,784,642.81	1,200,965.68	4.48		
Miscellaneous Operations	430,001.97	421,650.43	8,351.54	1.98		
General	2,732,956.15	2,223,050.89	509,905.26	22.94		
Transportation for Investment—Credit	307,076.95	367,808.81			$60,731.86	16.51
Total Railway Operating Expenses	$56,275,423.02	$52,411,567.67	$3,863,855.35	7.37		
Net Revenue from Railway Operations	$20,357,550.95	$18,661,423.40	$1,696,127.55	9.09		
Railway Tax Accruals	$3,253,683.00	$3,052,356.85	$201,326.15	6.60		
Uncollectible Railway Revenues	11,319.59	13,667.03			$2,347.44	17.18
Total	$3,265,002.59	$3,066,023.88	$198,978.71	6.49		
Railway Operating Income	$17,092,548.36	$15,595,399.52	$1,497,148.84	9.60		
OTHER OPERATING INCOME:						
Rent from Locomotives	$134,327.66	$70,342.19	$63,985.47	90.96		
Rent from Passenger Train Cars	53,118.24	59,257.32			$6,139.08	10.36
Rent from Floating Equipment	87,284.09	85,939.69	1,344.40	1.56		
Rent from Work Equipment	21,974.03	22,349.60			375.57	1.68
Joint Facility Rent Income	548,102.95	457,118.19	90,984.76	19.90		
Total Other Operating Income	$844,806.97	$695,006.99	$149,799.98	21.55		
Total Operating Income	$17,937,355.33	$16,290,406.51	$1,646,948.82	10.11		
DEDUCTIONS FROM OPERATING INCOME:						
Hire of Freight Cars—Debit Balance	$2,415,192.38	$2,171,711.31	$243,481.07	11.21		
Rent for Locomotives	135,927.10	114,753.20	21,173.90	18.45		
Rent for Passenger Train Cars	68,903.31	65,865.66	3,037.65	4.61		
Rent for Floating Equipment	37.80		37.80			
Rent for Work Equipment	42,901.07	48,596.97			$5,695.90	11.72
Joint Facility Rents	2,022,802.95	1,939,440.01	83,362.94	4.30		
Total Deductions from Operating Income	$4,685,764.61	$4,340,367.15	$345,397.46	7.96		
Net Railway Operating Income	$13,251,590.72	$11,950,039.36	$1,301,551.36	10.89		
NON-OPERATING INCOME:						
Income from Lease of Road	$20,051.50	$27,841.19			$7,789.69	27.98
Miscellaneous Rent Income	244,518.28	265,185.61			20,667.33	7.79
Miscellaneous Non-Operating Physical Property	36,804.10	68,152.32			31,348.22	46.00
Dividend Income	1,137,740.48	947,800.75	$189,939.73	20.04		
Income from Funded Securities	90,428.01	83,478.58	6,949.43	8.32		
Income from Unfunded Securities	372,727.63	239,679.14	133,048.49	55.51		
Income from Sinking and Other Reserve Funds	212.50	212.50				
Miscellaneous Income	20,405.03	3,505.72	16,899.31	482.05		
Total Non-Operating Income	$1,922,887.53	$1,635,855.81	$287,031.72	17.55		
Gross Income	$15,174,478.25	$13,585,895.17	$1,588,583.08	11.69		
DEDUCTIONS FROM GROSS INCOME:						
Rent for Leased Roads	$364,257.85	$363,633.53	$624.32	.17		
Miscellaneous Rents	33,087.60	21,189.00	11,898.60	56.15		
Miscellaneous Tax Accruals	43,052.26	84,985.09			$41,932.83	49.34
Interest on Funded Debt	6,239,316.31	5,936,108.95	303,207.36	5.11		
Interest on Unfunded Debt	513,269.51	665,664.87			152,395.36	22.89
Amortization of Discount on Funded Debt	125,561.67	109,235.68	16,325.99	14.95		
Miscellaneous Income Charges	1,529.19	3,801.04			2,271.85	59.77
Total Deductions from Gross Income	$7,320,074.39	$7,184,618.16	$135,456.23	1.89		
Net Income	$7,854,403.86	$6,401,277.01	$1,453,126.85	22.70		

Operating Revenues

The operating revenues for the year 1929 compare with 1928 as follows:

	1929	1928	Increase or *Decrease*	Per Cent Increase or *Decrease*
Freight	$63,796,582.56	$58,840,270.65	$4,956,311.91	8.42
Passenger	7,042,372.25	7,194,988.17	*152,615.92*	*2.12*
Mail	1,318,496.07	853,779.83	464,716.24	54.43
Express	1,759,485.20	1,553,661.48	205,823.72	13.25
Miscellaneous	2,716,037.89	2,630,290.94	85,746.95	3.26
Total	$76,632,973.97	$71,072,991.07	$5,559,982.90	7.82

A comparison of freight revenue by general classes of traffic follows:

	1929	1928	Increase or *Decrease*
Products of Agriculture	$9,921,367.89	$9,194,074.91	$727,292.98
Products of Animals	6,512,786.27	6,540,103.67	*27,317.40*
Products of Mines	9,162,247.81	8,335,955.57	826,292.24
Products of Forests	2,134,711.90	2,281,052.30	*146,340.40*
Manufactures and Miscellaneous	27,748,762.68	24,762,214.51	2,986,548.17
Merchandise	8,316,706.01	7,726,869.69	589,836.32
Total	$63,796,582.56	$58,840,270.65	$4,956,311.91

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Wabash Railway Company

GENERAL BALANCE SHEET
December 31, 1929, Compared with December 31, 1928

ASSETS	1929	1928	Increase	Decrease
INVESTMENTS:				
Investment in Road and Equipment	$291,931,438.28	$281,230,395.75	$10,701,042.53	
Sinking Funds	455.74	62.51	393.23	
Miscellaneous Physical Property	2,010,464.82	2,008,497.26	1,967.56	
Investments in Affiliated Companies	11,586,685.12	9,577,050.06	2,009,635.06	
Other Investments	23,669,457.56	23,672,961.56		$3,504.00
TOTAL	$329,198,501.52	$316,488,967.14	$12,709,534.38	
CURRENT ASSETS:				
Cash	$4,668,064.61	$3,719,323.82	$948,740.79	
Special Deposits	426,036.25	4,467,717.87		$4,041,681.62
Loans and Bills Receivable	8,633.59	1,553,217.30		1,544,583.71
Traffic and Car-Service Balances Receivable	1,714,376.00	2,168,546.91		454,170.91
Net Balance Receivable from Agents and Conductors	294,079.77	318,774.43		24,694.66
Miscellaneous Accounts Receivable	2,420,444.90	1,862,884.86	557,560.04	
Material and Supplies	4,371,183.28	4,691,575.26		320,391.98
Interest and Dividends Receivable	501,509.84	324,251.89	177,257.95	
Rents Receivable	54,121.78	94,517.50		40,395.72
Other Current Assets	59,978.36	60,805.44		827.08
TOTAL	$14,518,428.38	$19,261,615.28		$4,743,186.90
DEFERRED ASSETS:				
Working Fund Advances	$197,476.79	$214,039.99		$16,563.20
Insurance and Other Funds	45,983.81	46,621.50		637.69
Other Deferred Assets	5,855.11	11,500.45		5,645.34
TOTAL	$249,315.71	$272,161.94		$22,846.23
UNADJUSTED DEBITS:				
Rents and Insurance Premiums Paid in Advance	$62,770.52	$79,404.48		$16,633.96
Discount on Funded Debt	3,442,477.09	3,454,194.23		11,717.14
Other Unadjusted Debits	778,933.39	1,565,769.28		786,835.89
Securities Issued or Assumed—Unpledged	988,406.63	999,406.63		11,000.00
Securities Issued or Assumed—Pledged	1,037,924.00	1,037,924.00		
TOTAL	$6,310,511.63	$7,136,698.62		$826,186.99
TOTAL ASSETS	$350,276,757.24	$343,159,442.98	$7,117,314.26	

The increase in mail revenue, $464,716.24, was due to receiving in 1929 a retroactive adjustment in the rate for hauling mail.

Operating Expenses

The operating expenses for the year 1929 compare with 1928 as follows:

	1929	1928	Increase or *Decrease*	Per Cent Increase or *Decrease*
Maint. of Way and Structures	$10,273,861.52	$9,496,663.03	$777,198.49	8.18
Maint. of Equipment	12,922,779.14	11,815,468.66	1,107,310.48	9.37
Traffic	2,237,292.70	2,037,900.66	199,392.04	9.78
Transportation—Rail Line	27,985,608.49	26,784,642.81	1,200,965.68	4.48
Miscellaneous Operations	430,001.97	421,650.43	8,351.54	1.98
General	2,732,956.15	2,223,050.89	509,905.26	22.94
Trans. for Investment—Cr.	307,076.95	367,808.81	*60,731.86*	*16.51*
Total Operating Expenses	$56,275,423.02	$52,411,567.67	$3,863,855.35	7.37

The ratio of operating expenses to revenues for the year 1929 was 73.43% as compared with 73.74% for the year 1928, a decrease in the per cent of .31.

The increase in Maintenance of Way and Structures expense is due to increase in rail laid and increase in forces improving general track conditions and a much heavier program for bridge renewals and improvements.

The increase in Maintenance of Equipment expense is due to heavy repair program to steam locomotives and freight train cars, which expense includes increase in wages of shop crafts.

Financial

CAPITAL STOCK. The par value of Capital Stock issued to December 31, 1929, was $138,492,967.17, there having been no change during the year.

Under the Articles of Incorporation, the holders of the Five Per Cent Convertible Preferred Stock B, may, at any time after August 1, 1918, and up to thirty days prior to any date fixed for the redemption of the entire issue of Five Per Cent Profit Sharing Preferred Stock A, convert the same into, and exchange the same for, Five Per Cent Profit Sharing Preferred Stock A and Common Stock of the corporation, such conversion to be at the rate of $50.00 par value of Five Per Cent Profit Sharing Preferred Stock A and $50.00 par value of Common Stock for each $100.00 par value of Five Per Cent Convertible Preferred Stock B, with a proper adjustment of declared and unpaid dividends.

During the year $72,400 par value of Five Per Cent Convertible Preferred Stock B was surrendered and exchanged for $36,200 par value of Five Per Cent Profit Sharing Preferred Stock A and $36,200 par value of Common Stock. Since August 1, 1918, $46,338,500 par value of Five Per Cent Convertible Preferred Stock B has been surrendered and exchanged for $23,169,250 par value of Five Per Cent Profit Sharing Preferred Stock A and $23,169,250 par value Common Stock.

FUNDED DEBT. The total funded debt on December 31, 1929, was $129,073,787.97, a net increase of $1,368,600.00 as compared with December 31, 1928. This increase was due to issuing certain obligations and retiring others as follows:

ISSUED DURING THE YEAR.		
Equipment Trust of 1929, Series H		$3,375,000.00
RETIRED DURING THE YEAR.		
Equipment Trust of 1920—6% Certificates	$755,400.00	
Equipment Trust of 1922—5% Certificates	283,000.00	
Equipment Trust of 1923—Series C	134,000.00	
Equipment Trust of 1924—Series D	166,000.00	
Equipment Trust of 1924—Series E	171,000.00	
Equipment Trust of 1925—Series F	279,000.00	
Equipment Trust of 1927—Series G	175,000.00	
Detroit & Chicago Extension First Mortgage Bonds	43,000.00	2,006,400.00
Net Increase		$1,368,600.00

The issue of $3,375,000 par value Wabash Railway Company Equipment Trust Certificates, Series H, was dated February 1, 1929, payable in fifteen equal and consecutive annual installments of $225,000, commencing February 1, 1930, and ending February 1, 1944, bearing interest at the rate of four and one-half per cent per annum, payable semi-annually, February 1 and August 1 of each year. Proceeds were used as part payment for two thousand 40-ton capacity, steel frame, single sheathed automobile box cars, purchased under the terms of Wabash Railway Equipment Trust Agreement, Series H, dated February 1, 1929, between Andrew S. Hannum and Harry Wells, Vendors, Bank of North America and Trust Company, Trustee, and Wabash Railway Company, the total cost of the equipment being $4,532,425.49. The remainder of the purchase price was paid in cash.

Road and Equipment

The more important items are as follows:

Road

Land for yard and terminal extensions	$652,133.92
Grade separation	560,816.84
River protection	128,013.93
Signals and interlockers	200,095.03
Crossings and signs	88,032.66
Train yards	746,472.77
Passing and other track additions and extensions	469,677.93

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Wabash Railway Company

GENERAL BALANCE SHEET
December 31, 1929, Compared with December 31, 1928

LIABILITIES	1929	1928	Increase	Decrease
STOCK:				
Capital Stock	$138,492,967.17	$138,492,967.17		
LONG TERM DEBT:				
Funded Debt Unmatured	$129,073,787.97	$127,705,187.97	$1,368,600.00	
CURRENT LIABILITIES:				
Traffic and Car-Service Balances Payable	$2,172,674.11	$1,698,287.22	$474,386.89	
Audited Accounts and Wages Payable	6,488,013.94	5,170,106.08	1,317,907.86	
Miscellaneous Accounts Payable	534,782.58	291,498.17	243,284.41	
Interest Matured Unpaid	238,767.50	255,902.00		$17,134.50
Dividends Matured Unpaid	4,935.00	4,268.75	666.25	
Funded Debt Matured Unpaid	11,200.00	5,200.00	6,000.00	
Unmatured Interest Accrued	1,681,562.03	1,649,369.29	32,192.74	
Unmatured Rents Accrued	376,506.00	260,884.23	115,621.77	
Other Current Liabilities	158,161.77	222,164.73		64,002.96
TOTAL	$11,666,602.93	$9,557,680.47	$2,108,922.46	
DEFERRED LIABILITIES:				
Other Deferred Liabilities	$4,473,255.34	$7,150,422.17		$2,677,166.83
UNADJUSTED CREDITS:				
Tax Liability	$2,569,879.15	$2,392,148.71	$177,730.44	
Insurance and Casualty Reserves	132,620.72	118,589.88	14,030.84	
Accrued Depreciation—Equipment	13,657,765.83	12,085,738.23	1,572,027.60	
Other Unadjusted Credits	2,462,098.17	2,378,343.74	83,754.43	
TOTAL	$18,822,363.87	$16,974,820.56	$1,847,543.31	
CORPORATE SURPLUS:				
Additions to Property	$1,053,609.25	$953,493.63	$100,115.62	
Profit and Loss Balance	46,694,170.71	42,324,871.01	4,369,299.70	
	$47,747,779.96	$43,278,364.64	$4,469,415.32	
TOTAL LIABILITIES	$350,276,757.24	$343,159,442.98	$7,117,314.26	

Bridges, trestles and culverts	718,946.77	
Rail and other track material	460,636.31	
Ballast	451,797.66	
Widening cuts and fills	339,190.62	
Wharves and docks	46,271.94	
Freight and passenger stations and other buildings	830,624.24	
Track scales	55,572.56	
Water stations	91,085.83	
Grain elevators	158,223.74	
Shops, enginehouses and appurtenances	51,533.99	
Special assessments	31,132.93	
Roadway machines	40,218.55	
Shop tools and power plant machinery	57,747.77	
Application of rail anchors	14,151.49	
Application of tie plates	28,142.44	$6,220,519.92

Equipment

NEW		
2035 Automobile cars	$4,611,017.43	
12 automobiles	7,808.77	$4,618,826.20

The following is a general description of the expenditures enumerated:

The policy of improving conditions of ballasting in main tracks was continued by applying 242,805 cu. yds. of crushed rock, 39,869 cu. yds. of washed gravel, and 21,456 cu. yds. of slag.

One hundred thirty-seven miles of new 110-lb. rail was laid, replacing lighter weights.

The program for replacing of pile and temporary bridges with permanent structures was continued.

The work of constructing a new 828-ft. double track concrete and steel bridge over the Vermillion River at Danville, Ill., replacing a 668-ft. single track bridge was practically completed at the end of the year.

Due to continued erosion of the embankment bv the Missouri River, additional protection was placed at Missouri City, Mo., DeWitt, Mo., and Brunswick, Mo.

For more efficient and economical handling of freight at Detroit, Mich., a new concrete and brick freight house was constructed at Trombly Ave. The facilities at Twelfth St. were improved by constructing a steel and concrete addition to the freight house, replacing office with a new brick and concrete structure.

A new concrete, steel, brick and limestone passenger station was constructed on Delmar Boulevard, in the residential section of St. Louis, Mo. Owing to this convenient location, there has been a considerable increase in our passenger business into and out of St. Louis.

The work of eliminating grade crossings at Hastings and Russell Sts., Detroit, Mich., and State Highway No. 6, Moravia, Iowa, was completed. Separation of grades at Southfield Road, Oakwood, Mich., was started and completed within the year. Separation of grades at West Fort St., Detroit, Mich., will be completed early in 1930. Work was well under way on separation of grades at Seventy-fifth St. and Western Ave., Chicago, Ill., and Brush College Road, Decatur, Ill.

Crossing signals for protection of highway traffic were installed at the following points: Moberly, Mo., Cerro Gordo, Ill., Detroit, Mich., Chicago, Ill., Willis, Mich., Whittaker, Mich., Orland, Ill., Hand, Mich., Oak Lawn, Ill., Anglum, Mo., Forrest, Ill., Taylorville, Ill., Rockford, Ind., Whitehouse, Ohio, and Buck Creek, Ind.

Automatic block signals were installed between North Liberty, Ind., and Lakeville, Ind., between Hugo, Ind., and Peru, Ind., and between Edwardsville, Ill., and DeCamp, Ill., making a total of 716.85 miles of track now protected by automatic block signals. Automatic signals at crossing with the Missouri-Kansas-Texas Railroad at Moberly, Mo., were installed.

For handling eastbound trains, additional yard facilities were constructed at Decatur, Ill., and the yard at Oakwood, Mich., was enlarged. The yards at Delray, Mich., were rearranged and extended so as to properly serve the new Fruit Terminal constructed by the Green Real Estate Co.

Federal Valuation

During the entire year the Interstate Commerce Commission has had under consideration the evidence submitted and the briefs filed in your Valuation Case, consequently no final valuation has yet been served on the Company.

The Interstate Commerce Commission has during the year established a new valuation date, namely December 31, 1927, and your valuation forces are now engaged in the preparation of returns to recent Orders issued by the Commission requiring a complete record of all changes in your property together with their costs, from the date of basic inventory, June 30, 1919, to the new valuation date, December 31, 1927.

Development

Your Company purchased for the enlargement of terminal facilities, 4.30 acres of land at Lafayette, Ind., 12.08 acres at Chicago, Ill., 2.22 acres at Delray, Mich., 7.22 acres at Decatur, Ill., 1.86 acres at St. Louis, Mo., 42.70 acres at Windsor, Ont., 33.70 acres at Council Bluffs, Iowa, 2.28 acres at Tolleston, Ind., for additional interchange facilities, and 57.95 acres of land to increase the present right-of-way to 100 ft. in width between West Point, Ind., and Attica, Ind.

There were one hundred fifty-seven new industries located on the tracks of your Company.

Preferred Stock Litigation

On January 6, 1930, the United States Supreme Court, by a unanimous decision which reversed the United States Circuit Court of Appeals for the Second Circuit and affirmed the District Court of the United States for the Southern District of New York, ordered a dismissal on the merits of the suit brought

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by John C. Barclay and the Willoughby Company on behalf of holders of Five Per Cent Profit Sharing Preferred Stock A to establish a dividend credit in respect of earnings for years in which no Preferred A dividend was declared by your Board of Directors, and to enjoin payment of dividends on the Five Per Cent Convertible Preferred Stock B and Common Stock until full dividends for all such previous years be paid. The policy of your Board of Directors in utilizing earnings for betterments and improvements in non-dividend and partial dividend years was sustained by the opinion of the Supreme Court. Following this decision, your Board of Directors released a 5% dividend on the Convertible Preferred Stock B for the year 1928 and declared a similar dividend for the year 1929:

Consolidation of Railways

On July 1, 1929, your Company filed with the Interstate Commerce Commission an application under Paragraph 2 of Section 5 of the Interstate Commerce Act for the establishment of a Wabash system to include:

Wabash Railway Company
Lehigh Valley Railroad Company
The Wheeling and Lake Erie Railway Company
The Pittsburgh & West Virginia Railway Company
Western Maryland Railway Company
Lehigh and New England Railroad Company
The Akron, Canton and Youngstown Railway Company
Toledo, Peoria and Western Railroad
Elgin, Joliet and Eastern Railway Company
Chicago & Illinois Midland Railway Company

This application was strongly supported by shippers and industries served by the Wabash lines and was formally approved by interventions on the part of the Public Service Commissions of nearly all the States in which Wabash properties are situated. While the application was pending awaiting hearing the Interstate Commerce Commission, under date of December 9, 1929, adopted as required by Paragraphs 4 and 5 of Section 5 of the Interstate Commerce Act, its Final Plan for the Consolidation of the Railway Properties of the Continental United States into a limited number of Systems. Under the Commission's Final Plan the Wabash properties were included in System No. 7—Wabash-Seaboard—which embraces all of the above Companies except three, which are relatively unimportant. There were also incorporated in the System:

Norfolk and Western Railway Company
Seaboard Air Line Railway Company
The Chesapeake and Ohio Railway Company of Indiana
Detroit, Toledo & Ironton Railroad Company
(Undivided one-half interest)

as well as numerous smaller Companies having connections with the Major Companies incorporated in the System.

General Remarks

A new fruit and vegetable terminal, consisting of one two-story concrete and brick building, 1,044 feet long by 70 feet wide, and one concrete and brick building, 1,044 feet long by 70 feet wide, having two stories for a length of 666 feet, together with tracks, having capacity of 841 cars and other appurtenances, was constructed at Detroit, Mich., by the Green Real Estate Company.

These facilities provide a home for the fruit and vegetable business of Detroit, consisting of a fruit auction auditorium, facilities for displaying fruit and vegetables, offices for car-lot receivers, shippers, growers and other enterprises affiliated with the fruit and vegetable industry.

The Capital Stock of the Green Real Estate Company, consisting of 360,000 shares, without par value, is owned equally by the Wabash Railway Company, the Pennsylvania Railroad Company and the Pere Marquette Railway Company.

On July 11, 1929, the Company entered into an agreement with the Baldwin Locomotive Works for the building of 25 Mountain type 4-8-2 freight locomotives, and on December 13, 1929, for the building of 25, 4-8-4 type freight locomotives. These locomotives are to be delivered in the early part of the coming year.

On December 6, 1929, agreement was entered into with the American Car and Foundry Company for the building of three 70-ft. steel baggage-mail cars, for delivery in the early part of the coming year.

On June 27, 1929, the Company entered into an agreement with the Toledo Shipbuilding Company for the building of one 370-ft. car ferry, for use on the Detroit River, delivery of which will be made early in 1930.

By order of the Board of Directors.

J. E. TAUSSIG.
President.

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Railway Finance

ANN ARBOR.—*Annual Report.*—The annual report of this company for 1929 shows net income, after interest and other charges, of $628 812, as compared with net income in 1928 of $471,488. Selected items from the income statement follow:

	1929	1928	Increase or Decrease
Average mileage operated	293.86	293.86	.....
RAILWAY OPERATING REVENUES	6.244,153	5,965,673	+278,480
Maintenance of way	659,536	621,135	+ 38,401
Maintenance of equipment	1,248,918	1,292,441	— 43,523
Transportation	2,367,915	2,226,531	+141,383
TOTAL OPERATING EXPENSES	4,567,993	4,425,486	+142,506
Operating ratio	73.16	74.18	— 1.02
NET REVENUE FROM OPERATIONS	1,676,161	1,540,187	+135,974
Railway tax accruals	321,358	322,963	— 1,604
Railway operating income	1,354,687	1,216,944	+137,743
Joint facility rents	54,965	69,226	— 14,261
NET RAILWAY OPERATING INCOME	1,042,452	935,312	+107,140
Non-operating income	35,230	25,902	+ 9,327
GROSS INCOME	1,077,682	961,215	+116,467
Interest on funded debt	419,363	426,971	— 7,608
TOTAL DEDUCTIONS FROM GROSS INCOME	448,870	489,727	— 40,857
NET INCOME	628,812	471,488	+157,324

BALTIMORE & OHIO. — *Consolidation Plan.*—The Baltimore & Ohio has filed with the Interstate Commerce Commission a reply to the petition of Philadelphia trade bodies that had asked the commission to reopen its consolidation plan and modify it so as to make the Reading and Central of New Jersey the basis of an independent system instead of part of a proposed Baltimore & Ohio system. The reply points out that these bodies had already been heard on the subject by the commission and that while the B. & O. does not desire to prevent the commission from obtaining any substantial facts and considerations it may wish bearing upon the question, "it believes that further opportunity will later present itself for that purpose not requiring the reopening of the complete plan and when pertinent facts may be presented which may not only be informative to the commission but perhaps to the Philadelphia trade bodies as well."

BANGOR & AROOSTOOK.—*Annual Report.*—Annual report for this company for 1929 shows net income after interest and other charges of $1,398,433, as compared with net income in 1928 of $983,077. Selected items from the income statement follow:

	1929	1928	Increase or Decrease
Average mileage operated	613.78	614.23	— .45
RAILWAY OPERATING REVENUES	8,135,674	7,199,222	+936,452
Maintenance of way	1,303,873	1,313,165	— 9,293
Maintenance of equipment	1,662.349	1,414,229	+248.119
Transportation	1,953,561	1,797,966	+155,595
TOTAL OPERATING EXPENSES	5,340,514	4,950,505	+390,009
Operating ratio	65.64	68.77	— 3.13
NET REVENUE FROM OPERATIONS	2,795,160	2,248,717	+546,442
Railway tax accruals	613,720	573,623	+ 40,099
Railway operating income	2,181,253	1,673,858	+507,396
Hire of freight cars	99,442	213,804	—114,362
Joint facility rents	10,414	2,206	+ 8,208
Non-operating income	176,669	285,304	—108,635
GROSS INCOME	2,357,922	1,959,162	+398,760
Interest on funded debt	932,542	947,851	— 15,309
TOTAL DEDUCTIONS FROM GROSS INCOME	23,533	10,764	+ 12,769
NET INCOME	1,398,433	983,077	+415,356

BELT RAILWAY OF CHICAGO.—*Equipment Notes.*—This company has applied to the Interstate Commerce Commission for authority to issue $220,000 of equipment notes to be used in connection with the acquisition of 5 new switching locomotives.

BOSTON & MAINE.—*Bonds.*—Kidder, Peabody & Co., Lee Higginson & Co.,

(*Continued on page 805*)

Delaware, Lackawanna & Western Railroad Company

New York, April 1st, 1930.

TO THE STOCKHOLDERS OF

THE DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY:

A report of the results from operation of the property of your Company, for the calendar year 1929, is herewith respectfully submitted.

The gross transportation receipts, taken as a whole, were approximately the same as for the preceding year, the gain in freight revenues being practically offset by a further loss in revenue from transportation of passengers.

Substantial gains were realized, compared with the previous period, in all classes of transportation, excepting passengers, during the first nine months of 1929, but this was followed by a decided abatement of business activity during the closing months of the year, resulting in a pronounced reduction of traffic offered for transportation during the last three months of 1929 and a consequent falling off in gross earnings.

The conditions referred to next above were nation-wide in their scope and the gross receipts of all railroads were adversely affected thereby.

Labor saving machinery and devices were utilized in maintenance and operation wherever it appeared that a compensating reduction in cost could be effected thereby, with the result that, notwithstanding wage increases to several classes of employes, a satisfactory reduction in the total operating expenses was accomplished.

Transportation Revenues

The aggregate revenues from operation in 1929 amounted to $81,743,222, an increase of $608,041 over similar revenues of the year 1928.

A number of downward adjustments in rates to and from certain points served by your railroad, by order of The Interstate Commerce Commission and State Commissions, became effective during the year, and the revenues from the commodities affected were reduced accordingly.

Revenue from Transportation of Anthracite Coal increased over the previous year $325,101.

Revenues from commodities other than anthracite coal in 1929 exceeded those of the year 1928 by $453,489, and the revenue traffic of this class handled in 1929 was 18,468,600 tons as compared with 17,390,950 tons for the year 1928.

Revenue from Transportation of Passengers in 1929 was $717,996 less than in the previous year. As explained in previous annual reports, this progressive decrease in passenger revenues is wholly due to the diversion of the traveling public to automotive means of transportation which materially reduces passenger revenues of your Company from year to year with very little, if any, compensation in the reduction of operating expenses, as substantially the same passenger service must be maintained to accommodate the greatly reduced number of persons that continue to use railroad passenger trains operated to and from points other than within the New Jersey Suburban Zone.

Revenues from Transportation of United States Mail in 1929 amounted to $1,596,593, an increase over the previous year of $512,574; but included in the mail revenues of 1929 was $465,000, being a retroactive award of increased mail pay ordered by the Interstate Commerce Commission, covering the period May 9th, 1925, to August 1st, 1928.

Revenues from Express and Milk Transportation for the current year were slightly less than in the previous year, but notwithstanding the diversion of short haul traffic of these classes to motor trucks the outlook for continued patronage is reasonably encouraging.

There was a substantial increase in revenue from vehicular traffic over the Company's ferries during the year, which, in view of the competition of the Holland Tubes, is encouraging.

The results from Other Transportation and Incidental sources were generally satisfactory.

Operating Expenses

A statement, in detail, of the cost of maintaining and operating your Railroad during the year 1929, showing increases and decreases by primary accounts, in comparison with similar expenses of 1928, is included on pages 21 to 24 of this report.

The total operating expenses for the year 1929 amounted to $57,719,910, a decrease of $255,377, compared with the operating expenses of 1928.

The principal fluctuations, in comparison with the year 1928, are explained and commented upon below:

Maintenance of Way and Structures

There was expended for repairs and renewals of roadway and structures in 1929 $7,656,284, a decrease of $297,949, compared with similar costs in 1928.

In accordance with the established practice of the Company, expenditures were made where necessary to maintain the property in a high state of preservation and usefulness.

There were laid in replacement 197,676 treated and 1,263 untreated cross ties, or 28,588 less than were laid in the previous year. The prevailing use of mechanically treated cross ties in track maintenance, owing to the greatly increased service life thus obtained, will have a tendency to decrease the number of units required annually in replacement.

New rail laid in replacement during 1929 aggregated 18,934 tons, or 1,589 tons less than in the preceding year. A comparative statement, by years, of rail tonnages and weight sections laid in replacement is as follows:

Year	Tonnage 130 lbs. to Yard	Tonnage 118 lbs. to Yard	Tonnage 105 lbs. to Yard	Tonnage 80 lbs. to Yard	Total Tonnage All Weights
1920.....	.....	.....	16,297	2,944	19,241
1921.....	.....	.....	19,572	1,283	20,855
1922.....	.....	.....	11,604	1,245	12,849
1923.....	.....	.....	14,199	2,308	16,507
1924.....	.....	9,515	6,232	620	16,367
1925.....	7,378	4,501	880	36	12,795
1926.....	13,541	26	3,634	723	17,924
1927.....	13,623	44	3,298	400	17,365
1928.....	15,398	7	5,113	5	20,523
1929.....	16,134	.....	1,931	869	18,934

There was an increase in cost of maintaining Crossings and Signs of $73,617, in comparison with the year 1928, due to heavier retirement charges in connection with grade crossing elimination projects, and the cost of raising overhead highway bridges at Newark and Summit, New Jersey, to provide necessary clearance for the electrification project now under way.

The cost of maintaining Signals and Interlockers in 1929 was less by $107,879 than the charges of this kind in the previous year, resulting from a reduction in retirement charges incident to the installation of automatic train control between Elmira and Scranton, which was completed in 1928; also reduced ordinary maintenance cost brought about by the installation in recent years of modern signal and interlocker devices.

Maintenance of Equipment

The cost of repairs and renewals of rolling stock and floating equipment during the year 1929 was $14,280,455, an increase over the previous year of $484,697.

Somewhat heavier costs were incurred for repairs and renewals of Locomotives, Freight Train Cars and Floating Equipment in 1929 than in the previous year, due to ordinary fluctuations in the equipment maintenance program; but the expenditures of this kind were not excessive, and, in fact, were substantially less than the average of such costs for the past five years.

The indicated increase of $157,870, in comparison of the item Freight Train Cars—Retirements, is wholly due to a credit adjustment included in this account in 1928, growing out of the allowance for depreciation in excess of accruals by the Company during the period of Federal control and operation.

Following the established policy of retiring units of equipment when same become obsolete and uneconomical to operate, there were taken out of service and scrapped during the year 1929, 36 Locomotives, 1,518 Freight Train Cars, 6 Passenger Cars, and 60 Company Service Cars. Practically all of the freight cars retired during the year were of wooden body construction and of low tonnage capacity.

All classes of rolling stock and floating equipment remaining in service at the close of the year were in good serviceable condition.

Transportation Expenses

The cost of performing transportation service in 1929 was $31,640,623, or $152,170 less than in the year 1928.

Revenue freight shipments in 1929 amounted to 28,906,268 tons, or 1,331,137 tons in excess of the transportation performance of 1928; and the revenue train mileage required to handle the 1929 tonnage was 6,157,041 miles or 297,582 miles less than in the preceding year. The average net train load in 1929 was

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811 tons, compared with 766 tons in 1928, an increase of practically six percent.

There were transported to and from points within the New Jersey Suburban Zone 23,247,011 passengers, or 213,964 more than in the preceding year.

The number of other passengers carried was 4,333,405, or 390,411 less than in 1928.

Passenger trains were operated 5,837,015 miles during 1929, as compared with 6,105,862 miles in 1928, a decrease of 268,847 passenger train miles.

Loss and Damage-Freight payments in 1929 amounted to $352,063, a decrease of $40,338, or 10.3% under the loss and damage payments in the year 1928.

The ratio of loss and damage freight payments to gross freight revenue in 1929 was .58%, or proportionately less than in any calendar period since 1905.

Payment for Injuries to Persons caused by transportation accidents in 1929 amounted to $424,025, an increase over the previous year of $61,690. No extraordinary train accidents occurred during the year, and the increase in comparison with 1928 is on account of the abnormally low cost of transportation injuries in the previous year.

Agriculture and Industry

A fairly prosperous year was enjoyed by the farmers located in territories served by your Company.

The unfavorable weather conditions that prevailed throughout a large part of the area had the effect of reducing the average yield per acre of some of the crops below that of the preceding year, but prices were higher and profits were better than in any year since the depression following the World War.

Dairy farming in New York State was more satisfactory to the farmers in 1929 than for several years past; good prices were realized with relatively low costs for feed.

The threatened danger at the close of the year 1928 of a shortage in milk production to supply the demand in the fall months of 1929 was averted by the activities of the Committee mentioned in the last annual report, and as a result of their efforts, a surplus instead of a shortage in the supply of milk was realized in the months of October and November, 1929.

Potatoes and cabbage were successfully produced and marketed during the year and certified seed potatoes in the State of New York were produced in larger quantities.

The agriculturist employed by your Company devotes his entire time to promoting the interests of the various farming communities reached by your railroad, and during the year has delivered addresses to thirty-three different groups of farmers, and has held himself in readiness at all times to answer individual calls for consultation and advice on the kinds of crop best adapted to the soil of the various localities, the most scientific methods of fertilization and cultivation, etc.

During the year 1929 the Industrial Department has secured the location of fifty-five new industries at various points along the railroad. Your Company's proportion of the cost of industrial tracks installed during the year was $49,063.46.

Financial

Under date of April 27th, 1929, the Morris and Essex Railroad Company issued and delivered to your Company $15,000,000 par value of its Construction Mortgage 4½% Gold Bonds, Series B, in reimbursement for expenditures previously made for Additions and Betterments and road extensions to the property of the Morris and Essex Railroad Company, which bonds, together with $10,000,000 par value of Morris and Essex Railroad Company Construction Mortgage 5% Gold Bonds, Series A, issued and delivered to your Company for like purposes under date of November 19th, 1925, were held in its treasury at the close of the year 1929.

An issue of $150,000 par value of Bangor and Portland Railway Company 1st Mortgage Bonds, payment of which was assumed by your Company under the merger agreement of July 1st, 1909, matured January 1st, 1930, and were all redeemed prior to or at maturity.

In order to meet current contractual payments in connection with the electrification of the suburban zone, and the construction of the new Terminal freight and warehouse facilities at Jersey City, which have been actively under way during 1929, and the purchase of new equipment, of which more specific mention is made elsewhere in this report, your Company negotiated a temporary bank loan of $6,000,000. The payment of this loan and the permanent financing of the improvements in process of construction, together with further purchase of equipment, will be accomplished through the sale of $25,000,000 par value of Morris and Essex Railroad Company Construction Mortgage Bonds now held in the treasury of your Company, as hereinbefore mentioned, but sale of which has been deferred, awaiting a favorable market for funded securities.

During the year 1929 the railroads of the country organized the Railway Express Agency, Incorporated, to acquire and operate the property of the American Railway Express Company, and by agreement effective March 1st, 1929, your Company became a joint owner, with other railroads, of the Railway Express Agency, Incorporated, through the purchase of its prorata share of the Capital Stock thereof.

Welfare Expenditures

Payments to retired employes in 1929 under the pension system of your Company amounted to $447,996, an increase of $46,453, or 11.57% in excess of the pension payments for the year 1928.

The pension system of your Company was inaugurated June 1st, 1902, and a comparative statement of disbursements for account thereof, by calendar years from 1902 to 1929, inclusive, is as follows:

Calendar Year	Amount	Calendar Year	Amount	Calendar Year	Amount
1902	$6,360.94	1911	$85,092.24	1920	$187,299.98
1903	16,202.85	1912	93,521.50	1921	213,625.49
1904	24,619.09	1913	103,607.95	1922	223,587.23
1905	31,681.05	1914	111,089.68	1923	245,071.48
1906	45,196.13	1915	122,828.46	1924	260,213.20
1907	51,412.95	1916	134,969.98	1925	302,040.85
1908	57,620.24	1917	154,009.42	1926	347,161.36
1909	71,322.42	1918	153,577.12	1927	369,641.42
1910	80,580.15	1919	160,958.05	1928	401,543.04
				1929	447,995.51
Aggregate payments June 1st, 1902 to December 31st, 1929					$4,502,829.78

Statistical information in respect of pensioned employes on the rolls, December 31st, 1929, is as follows:

Number of pensioned employes on rolls December 31st, 1929	640
Number of employes pensioned June 1st, 1902 to December 31, 1929	1,760
Number of employes granted pensions during 1929	102
Number of pensioned employes that died during 1929	73
Greatest length of service	62 yrs. 6 months
Number of pensioners who served 50 years and over	87
Number of pensioners who served between 40 and 50 years	262
Number of pensioners who served between 25 and 40 years	279
Number of pensioners who served less than 25 years	12
Average number of years in employ of Company	40 yrs. 3 months
Average age at retirement	67 yrs. 2 months
Average age at present time	72 yrs. 11 months
Average pension payroll per month	$37,332.96

Group Insurance

Pursuant to the plan authorized and made effective February 1st, 1922, your Company paid as its proportion of the premiums assessed for the year 1929, $177,582.29.

A statement of the number of beneficiaries and the amount of insurance carried at the close of the year 1929, together with other important details, follow:

Number insured December 31st, 1929	17,345
Total insurance, December 31st, 1929	$34,535,000
Deaths during the year 1929	212
Permanent disability claims, year 1929	28
Insurance Company paid account of death claims during 1929	$403,000
Insurance Company paid account of disability claims during 1929	$64,000
Premiums paid by employes	$280,887.73
Premiums paid by Company	$177,582.29
Number of death claims, February 1st, 1922 to December 31st, 1929	1,279
Number paid permanent disability benefits	102
Amount paid account of death claims, February 1st, 1922 to December 31st, 1929	$2,470,000
Amount paid account of permanent disability claims	$204,000

In addition to the foregoing expenditures, your Company paid as its proportion of the 1929 deficit from the operation of the Moses Taylor Hospital, of Scranton, Penna., $39,227.81, and contributed toward the running expenses of Railroad Y. M. C. A's, located at various points along the line, $29,288.64.

Taxes

Tax assessments during the past fifteen years are indicated by the following:

Calendar Year	Total Tax Assessments	Taxes per Dollar of Gross Revenue Cents	Taxes per Dollar of Revenue after Operating Expenses Cents
1915	$2,115,333.84	4.72	12.42
1916	2,517,882.68	4.88	12.82
1917	3,584,917.49	6.27	18.35
1918	3,922,872.54	5.71	20.85
1919	5,159,802.72	7.18	32.74
1920	4,539,785.14	5.45	47.79
1921	4,979,439.57	5.80	28.01
1922	4,894,466.10	6.56	44.72
1923	5,995,697.51	6.80	32.02
1924	6,900,101.85	7.96	31.02
1925	6,832,652.72	8.17	32.16

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Calendar Year	Total Tax Assessments	Taxes per Dollar of Gross Revenue Cents	Taxes per Dollar of Revenue after Operating Expenses Cents
1926.....	7,671,403.68	8.64	29.03
1927.....	7,457,093.11	8.81	30.43
1928.....	6,392,638.37	7.88	27.60
1929.....	6,635,895.83	8.12	27.62

A further reduction in Federal Income Tax Assessments from 12% to 11% was made for the year 1929 resulting in approximately $100,000.00 less Federal Taxes than in the year 1928. There was an increase of upwards of $340,000.00 in State and Local Taxes.

Additions and Betterments

Charges to the Investment Account, for Road and Equipment of your Company and its leased lines, less credits for property retired from service during the year 1929, were $11,105,096.34.

The projects which are worthy of special mention because of their magnitude and importance, commenced during the year 1929 and actively in process of construction at the close of the year, are as follows:

ELECTRIFICATION OF SUBURBAN ZONE IN NEW JERSEY—This embraces the electrification of the line and suburban trains operated thereon between Hoboken and Dover via Morristown; from connection with the main line at Roseville Avenue, Newark to Montclair, and from connection with the main line at Summit to Gladstone, also that portion of the Railroad on the Boonton Branch from connection with the main line at west end of tunnels to Secaucus, the purpose of the last mentioned being to provide facilities for the movement of freight with electric locomotives between the breaking up yard in Secaucus, and the tidewater terminal.

There are under construction by the Pullman Car and Manufacturing Corporation, 141 new steel passenger cars which will be equipped with motors for propulsion purposes, and the American Car and Foundry Company has under way the necessary alterations, to convert into trailer units 141 of the present steel suburban passenger cars.

Substation buildings are under construction and will be completed early in the year 1930.

The electrical equipment, most of which is being manufactured by the General Electric Company, is expected to be ready for delivery by the time the cars and substation buildings are ready for its installation. Foundations for the overhead contact system are complete from the Hoboken Yard to Morristown, and the steel supporting structures are substantially complete from the west end of the tunnel to Montclair. Stringing of the contact wire will be commenced soon.

Satisfactory progress is being made in carrying out the electrification program and it is anticipated that the work will be completed before the end of the year 1930.

NEW FREIGHT TERMINAL AND WAREHOUSE, JERSEY CITY, N. J.—In order to provide more modern and adequate freight terminal facilities, and to meet the growing demand for storage space at tidewater on the Jersey Shore, your Company has in process of construction and nearing completion at the close of the year, a new freight terminal and warehouse located at a point adjacent to the New Jersey entrance to the Holland Vehicular Tunnels and a short distance from the Hoboken entrance of the Company's Ferries to 23rd Street, Christopher and Barclay Streets, New York. These terminal facilities when completed will occupy an area of four city blocks and the building, containing eight stories with basement, will provide in addition to spacious and efficient freight handling facilities, public storage space of upwards of one million square feet. The building is of fireproof construction and equipped with up to date appliances for the most economical handling and storing of commodities. The warehouse space will be open to patrons in April 1930 and will make available to shippers and consignees the greatest dry storage area of its kind in one unit on the Atlantic Seaboard.

NEW CONCRETE PIER AND BULKHEAD, JERSEY CITY, N. J.—In connection with the new freight terminal and warehouse, a new pier, 1,200 feet x 40 feet, was completed during the year. This pier extends from the southerly property line of the freight terminal to the pierhead line in the North River and in addition to providing the necessary additional yard space for switching cars to and from the freight terminal, it furnishes means of handling carload freight to and from ocean vessels.

TERMINAL IMPROVEMENTS AT 25TH STREET, SOUTH BROOKLYN, N. Y.—To provide additional and improved facilities for handling anthracite coal and miscellaneous freight at your freight terminal located at 25th Street, South Brooklyn, a new concrete coal trestle with the necessary approach trestle, tracks, weighing scales, paving and other appliances, was erected and leased at an adequate rental to the Delaware, Lackawanna and Western Coal Company, effective December 1st, 1929, and in addition to the foregoing a new freight house and automobile platform equipped with all modern appliances for the expeditious handling of miscellaneous freight, and new tracks providing greatly increased car storage capacity are in process of construction and nearing completion at the close of the year.

New Equipment

In accordance with the policy of replacing, with units of greater capacity, locomotives and freight car equipment of light tonnage rating, retired, your Company purchased during the year the following:

20 Pocono Type 4-8-4 fast freight locomotives, with an aggregate tractive effort of 1,432,000 lbs., were received and placed in service in March and April 1929.

1,000 All steel 55-ton capacity freight cars, 417 of which were received and placed in service before the close of the year, the balance to be delivered early in 1930.

100 All steel 55-ton automobile cars, received and placed in service in March 1929.

250 All steel 70-ton capacity Hopper cars, received in November and December 1929.

2 All steel dining cars, received in May 1929.

2 All steel combination mail and baggage cars, received in December 1929.

In addition to the foregoing, twelve of the 1100 class road freight locomotives were reconstructed in the Company's Shops, and alterations made therein to convert same into a type suitable for yard drilling service. Ten of these locomotives were completed and placed in operation during the year and are giving very satisfactory service; the remaining two will be completed and placed in service early in 1930.

Other projects that were either completed or upon which substantial expenditures were made during the year are as follows:

1. Completing realignment of main track to provide right of way for construction of improved highway, between West Nanticoke and Hunlocks Creek, Pa.
2. Addition of 90-foot turntable, water cranes and tracks, and extending two stalls of the enginehouse at Bangor, Pa.; also adding water cranes and strengthening bridges between Portland and Bath, Pa., to accommodate the larger locomotives on the Bangor and Portland Division.
3. Addition to the Interlocking Plant at Bridge No. 60, Scranton, Pa., and changing tracks to reduce curvature to accommodate the larger locomotives on the Bloomsburg Division.
4. Installation of new machinery in Kingsland, Scranton, East Buffalo, East Binghamton and Syracuse shops.
5. Completing addition of new sub-structure, consisting of piles, caps and grillage, also addition of stone paving with concrete base at Fourteenth Street Ferry Terminal, Hoboken, N. J.
6. Installation of one 200-ton Fairbanks, Morse and Company track scale, complete, in concrete pit with scale house at freight terminal, Secaucus, N. J.
7. Construction of one-story brick yard office, Port Morris, N. J.
8. Additional facilities required for the operation of the coal dumpers, Hoboken, N. J.
9. Construction of third track and signal improvements between Junction with the Newark Industrial line and the Upper Hackensack River Bridge to facilitate handling freight between Secaucus yard and Newark, N. J.
10. Alterations to provide for a drug store in passenger terminal, Hoboken, N. J.
11. Strengthening bridge No. 73.95 over the Pequest River by addition of concrete floor and reinforced concrete face to present stone masonry, Bridgeville, N. J.
12. Addition of one-story steel structure for use as office, waiting room and freight house and construction of 865 lineal feet of reinforced concrete dock to serve the Detroit and Cleveland Navigation Company at Buffalo, N. Y.
13. Extending the Black Rock Yard east of Hertel Avenue to provide additional yard facilities, Buffalo, N. Y., account of grade separation work ordered by State of New York.
14. Extending eleven stalls of enginehouse to accommodate the larger locomotives, East Buffalo, N. Y.
15. Increased water supply facilities to furnish water for locomotives at Buffalo and North Alexander, N. Y.

Industrial tracks were laid in the year 1929 at the following locations: Harrison, Secaucus, Morris Plains, Little Falls, Kingsland, Netcong and Kenvil in the State of New Jersey; Nay Aug, Danville, Plymouth, Nicholson and Briar Creek in the State of Pennsylvania; and Elmira, Buffalo, Syracuse, Homer, Clayville, Millers Mills, Whitney Point, Brisben, Tully, Chenango Bridge, Richfield Junction, Cortland Junction and Utica in the State of New York.

Grade Crossings

Highway crossing protection is one of the most serious and costly problems confronting the railroads at the present time.

The ever increasing use of high speed motor vehicles, and the prevailing recklessness of drivers who refuse to reduce speed or to look and listen for approaching trains when nearing railroad crossings, result in appalling loss of life and personal injury, not to mention property loss running into many millions, a large part of which could be avoided by the exercise of reasonable care.

A recent survey of grade crossing accidents in the nation reveals the fact that more than twenty-five per cent of such accidents happened because motorists, failing to beat the railroad trains to the crossings, crashed into the side thereof.

During the past twenty years your Company has spent upwards of $29,000,000, or an average of $1,450,000 per annum in the elimination of grade crossings, and in addition the states and communities involved have made large expenditures as their proportion of the cost. Despite this fact, however, only 36% of all the crossings of your Company's lines have been separated from the highways. As a matter of fact and information, due to new highways under construction, new crossings at grade are being created about as fast as old ones are being eliminated.

Some progress has been made with highway officials during the past year in the matter of reducing the cost of grade separations through the construction of marginal highways paralleling your railroad, thus fitting the new roads into the existing road scheme by making the one crossing serve two or more highways.

With the cooperation of the authorities of the states and municipalities, where grade separations are necessary, in the interest of public safety, large savings can be realized for both taxpayers and the railroad, by the substitution of marginal highways for additional over or under-grade crossings at points where this can be accomplished without serious inconvenience to highway traffic.

The following grade crossings were eliminated in 1929 by construction of marginal highways:

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1 at Elmira	Grand Central Avenue
1 at Elmira	Kingsbury Avenue
1 at Elmira Heights	Grand Central Avenue
1 at Minetto	Myers Road

also two crossings east of Avoca, New York, in process of elimination at the close of the year.

Grade crossing eliminations by overhead highway bridges were in process of construction, but uncompleted at the close of the year, at the following points:

1 at East Corning, N. Y.	Big Flats—Gibson County Highway
1 at Elmira, N. Y.	East Water Street
1 at Chadwick, N. Y.	Willowvale Crossing

Inland Waterway Transportation

The necessity for the expansion of our national system of inland waterways is a much-talked-about subject. The chief reason for this development, according to the enthusiastic friends of waterway appropriations, is the bringing about of lower freight rates for manufacturers and farmers and consequent lower prices to consumers.

An important arm of this national system—the New York State Barge Canal—competes with your property for traffic moving between the Great Lakes and the Atlantic seaboard. It

PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDED DECEMBER 31ST, 1929

To Dividends (12% per annum)	$10,132,935.00	By Balance Brought Forward from December 31st, 1928	$72,210,318.46
To Dividends (2% extra)	1,688,824.00	By Sundry Adjustments	54,275.11
To Balance to credit: December General Balance Sheet	73,782,964.71	By Net Income for Year ended December 31st, 1929	13,340,130.14
	$85,604,723.71		$85,604,723.71

GENERAL BALANCE SHEET, DECEMBER 31st, 1929 AND 1928

ASSETS

	1929		1928	
INVESTMENTS:				
Investment in Road and Equipment:				
Road	$51,580,420.48		$50,850,744.67	
Equipment	62,684,492.35		60,469,356.14	
Improvements on Leased Railway Property	16,579,339.13		16,579,882.90	
Miscellaneous Physical Property	2,551,489.52		2,246,085.36	
Investment in Affiliated Companies:				
Stocks	9,484,081.37		9,481,484.37	
Bonds	3,177,382.75		2,996,655.00	
Notes	3,772,964.42		3,772,964.42	
Advances	2,667,579.72		2,575,081.80	
Other Investments:				
Stocks	1,252,607.75		1,252,607.75	
Bonds	41,225,230.70		27,345,292.57	
Notes	669,592.11		616,635.94	
Advances	14,963,292.26		21,910,864.22	
Total Investments		$210,608,472.11		$200,097,655.14
CURRENT ASSETS:				
Cash	$4,847,912.08		$5,422,021.70	
Loans and Bills Receivable	149.23		274.23	
Traffic and Car Service Balances Receivable	1,312,819.04		1,391,040.97	
Net Balances Receivable from Agents and Conductors	812,855.14		1,005,545.96	
Miscellaneous Accounts Receivable	1,607,846.99		1,671,003.44	
Materials and Supplies	2,915,538.09		2,830,532.88	
Total Current Assets		$11,497,120.57		$12,320,419.18
DEFERRED ASSETS:				
Working Fund Advances	$30,059.92		$27,613.58	
Insurance and Other Funds	151,659.00		151,659.00	
Total Deferred Assets		$181,718.92		$179,272.58
UNADJUSTED DEBITS:				
Rents and Insurance Premiums Paid in Advance	$607,257.22		$627,518.64	
Other Unadjusted Debits	744,641.28		839,575.96	
Total Unadjusted Debits		$1,351,898.50		$1,467,094.60
Grand Total		$223,639,210.10		$214,064,441.50

LIABILITIES

	1929		1928	
CAPITAL STOCK:				
Common Stock	$87,407,500.00		$87,407,500.00	
Less held by Company	2,966,300.00		2,966,400.00	
	$84,441,200.00		$84,441,100.00	
Stock Liability for Conversion			100.00	
Premium on Capital Stock	70,720.00		70,720.00	
Total Stock		$84,511,920.00		$84,511,920.00
LONG TERM DEBT:				
Funded Debt Unmatured	$320,000.00		$320,000.00	
Less held by Company	227,400.00		222,400.00	
	$92,600.00		$97,600.00	
Non-Negotiable Debt to Affiliated Companies	266,128.62		221,374.67	
Total Long Term Debt		$358,728.62		$318,974.67
CURRENT LIABILITIES:				
Loans and Bills Payable	*$6,000,000.00			
Traffic and Car Service Balances Payable	1,792,459.74		$1,947,754.96	
Audited Accounts and Wages Payable	5,677,462.25		3,831,455.69	
Miscellaneous Accounts Payable	8,809.41		11,830.26	
Interest Matured Unpaid	2,808.00		3,018.00	
Dividends Matured Unpaid	29,116.00		23,462.00	
Unmatured Dividends Declared	4,222,060.00		4,222,055.00	
Unmatured Rents Accrued	1,429,950.81		1,429,307.02	
Other Current Liabilities	152,636.25		141,234.39	
Total Current Liabilities		$19,315,302.46		$11,610,117.32
DEFERRED LIABILITIES:				
Other Deferred Liabilities		$7,801.26		$8,704.40
UNADJUSTED CREDITS:				
Tax Liability	$2,455,199.06		$3,137,151.65	
Insurance and Casualty Reserves	649,217.31		655,686.15	
Operating Reserves	25,782.36		27,533.34	
Accrued Depreciation—Equipment	34,363,170.34		33,294,277.82	
Other Unadjusted Credits	1,412,682.85		1,556,255.99	
Total Unadjusted Credits		$38,906,051.92		$38,670,904.95
CORPORATE SURPLUS:				
Additions to Property through Income and Surplus	$6,756,441.13		$6,733,501.70	
Profit and Loss—Credit Balance	73,782,964.71		72,210,318.46	
Total Corporate Surplus		$80,539,405.84		$78,943,820.16
Grand Total		$223,639,210.10		$214,064,441.50

* Temporary bank loan pending sale of Treasury Securities.

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has cost the taxpayers of the State more than $270,000,000. It has been given a fair trial. Farmers do not receive any more for products shipped by water between Buffalo and New York than for those which move by rail. The cost of a loaf of bread is the same regardless of whether the wheat or flour from which it is made is floated by canal or shipped by rail. The actual benefit of the canal is not, therefore, apparent.

Inland waterway transportation is, of course, a subsidized proposition. To arrive at the actual cost of water transportation to the shipper and the actual saving to the consumer, the taxes which go to the construction, operation, maintenance and interest on the indebtedness of the waterway must be taken into account. The average annual cost of the canal to the taxpayers is about $10,000,000. In 1928 it handled 3,089,998 tons of freight. The average cost of floating this freight, irrespective of the length of haul, was, therefore, approximately $3.25 per ton. Any railroad operating between Buffalo and New York could have accommodated this added tonnage by the addition of the necessary trains daily during the seven or eight months that navigation is possible on the canal. And, had the regular rail rate been paid for transporting it and the canal abandoned, the taxpayers would have been money ahead.

A hundred years ago it was undoubtedly cheaper and more expeditious to ship by water instead of by wagon, which latter was practically the only alternative means of transportation at that time, but with the tremendous development in highways and railroads during the past century it is altogether improper to assume that the relative difference in cost is the same today. In former days shipping charges added materially to the cost of commodities, but the improved transportation facilities of today have substantially reduced such costs. In those days inland waterways were essential and served their purpose in the development of the country, but under the changed present day conditions it would appear that they are no longer an economic necessity, and the enormous expenditure required to construct and maintain them seems to be disproportionately large when measured by their present-day usefulness for transportation purposes.

To the stockholders who have so ably promoted the welfare and prosperity of their Company through the success that has attended their efforts to procure competitive traffic for it and to shippers and travelers who have favored the Company with their patronage, the Management wishes to extend its grateful acknowledgment and to solicit a continuation of their valuable cooperation in this direction during the year 1930.

The Management again desires to express to the officers and employes of the Company its appreciation of the faithful and efficient manner in which they have discharged their duties during the year.

By order of the Board of Managers.

J. M. DAVIS,
President.

[ADVERTISEMENT]

Financial News

(*Continued from page 800*)

Harris, Forbes & Co., and the First National Old Colony Company of Boston are offering $15,000,000 of 5 per cent first mortgage bonds of this company subject to the approval of the Interstate Commerce Commission. The issue is priced at 100½ to yield approximately 4.96 per cent and will mature in 1955.

CENTRAL OF GEORGIA.—*New Director.*—J. L. Beven, vice-president of the Illinois Central, has been elected a director of this company to fill the vacancy created by the death of Charles T. Airey.

CHICAGO & EASTERN ILLINOIS.—*Control.*—It is reported, but not officially confirmed, that control of this company has passed from the Thomas F. Ryan estate to interests affiliated with O. P. and M. J. Van Sweringen of Cleveland.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Abandonment.*—Examiner Molster has submitted to the Interstate Commerce Commission a proposed report recommending that this company be authorized to abandon its line from Eagle to Troy Center, Wis., 5.02 miles.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Bonds.*—Kuhn, Loeb & Co., and the National City Company are offering subject to the approval of the Interstate Commerce Commission $15,000,000 of 4¾ per cent general mortgage series F bonds of the Chicago, Milwaukee & St. Paul, of which this company is the successor. The issue matures in 1989, is redeemable after 1940 at 105 and is priced at 100½.

CLEVELAND UNION TERMINALS.—*Bonds.*—J. P. Morgan & Co., the First National Bank and the National City Company are offering $18,000,000 of first mortgage 4½ per cent, series C, sinking fund bonds of this company, guaranteed unconditionally by the New York Central, the Big Four and the Nickel Plate. The issue matures in 1977 and is redeemable at 105 after 1937 and, under the sinking fund, after 1933. The issue is offered at 98 to yield 4.6 per cent.

COLORADO & WYOMING.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a one-mile line extending from Sopris, Colo., to Piedmont and the abandonment of operation under trackage rights over the Atchison, Topeka & Santa Fe from Jansen to Trinidad, 2.2 miles.

DELAWARE & NORTHERN.—*Stock.*—The Interstate Commerce Commission has authorized this company to issue 1100 shares of no-par common stock and to sell it at not less than $100 a share, the proceeds to be used to acquire railroad properties and for additions and betterments.

DETROIT & MACKINAC.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon its Rose City branch extending from Emery Junction (National City), Mich., to Rose City, 31.2 miles and a one-mile branch extending from Smith Junction to South Branch.

ELGIN, JOLIET & EASTERN.—*Annual Report.*—The annual report of this company for 1929 shows net income after interest and other charges of $960,663, as compared with net income of $1,196,875 in 1928. Selected items from the income account follow:

	1929	1928	Increase or Decrease
Average mileage operated	453.12	459.87	— 6.75
RAILWAY OPERATING REVENUES	26,304,938	24,502,894	+1,802,044
Maintenance of way	2,650,968	2,520,641	+ 130,327
Maintenance of equipment .	4,337,458	4,947,031	— 609,573
Transportation	9,256,579	8,458,959	+ 797,620
TOTAL OPERATING EXPENSES	17,096,233	16,820,060	+ 276,172
Operating ratio	64.73	68.37	— 3.64
Railway tax accruals ...	1,484,972	2,164,185	— 679,213
Railway operating income ..	7,830,669	5,616,329	+2,214,341
Equipment and joint facility rents—Net Dr.	2,378,407	1,885,370	+ 493,037
NET RAILWAY OPERATING INCOME	5,425,263	3,730,959	+1,721,303
Non-operating income ...	409,264	380,788	+ 28,477
GROSS INCOME.	5,861,527	4,111,746	+1,749,781
Rent for leased roads	4,174,061	2,239,596	+1,934,465
Interest on funded debt	500,000	500,000	.....
NET INCOME..	960,663	1,196,875	+ 236,213

ERIE.—*Bonds.*—This company has filed with the Interstate Commerce Commission an amendment to its application for authority to issue and hold in the treasury $50,000,000 of refunding and improvement mortgage 5 per cent bonds, series of 1930, to include authority to sell the bonds. The application states that due to improved conditions in the bond market it is advised that it can sell the bonds at not less than 93½.

FLORIDA EAST COAST.—*A.C.L. Objects to Allocation in Consolidation Plan.*—George B. Elliott, president of the Atlantic Coast Line, has addressed to the Interstate Commerce Commission a protest against the allocation of the Florida East Coast in the commission's consolidation plan to the Southern system, stating that the interests of Florida shippers would be better protected by allocating it to the A.C.L. The Southern, in reply, said it had not asked for the allocation of the Florida East Coast to its system and expressed the opinion that the East Coast can best serve the public interest by maintaining its present individual status. Chairman McManamy, of the commission, in acknowledging the letters, said that all parties would be afforded an opportunity to present their views at hearings before consolidations under the plan could be made effective. Mr. Elliott's letter took the position that the allocation of the East Coast to the Southern would at once deprive shippers located on the East

Coast of competition in service between the two dominant lines in the peninsula of Florida, the Coast Line and the Seaboard Air Line, and pointed out that such a step would leave the Coast Line without friendly connections to the east coast of Florida. It points out that the Coast Line has refrained from projecting its own lines into the east coast territory but has for many years been engaged in building up through routes in connection with the East Coast by a shorter line to the North than could be developed by the Southern in connection with the East Coast. Mr. Elliott submits that the shipping public in the peninsula do not require three major systems, as proposed by the commission's plan, but that all of the benefit that can flow to the shippers from competition will be afforded them by continuing the existence of the two similarly situated lines now constituting the Seaboard Air Line and the Atlantic Coast Line. L. E. Jeffries, vice-president and general counsel of the Southern, in his reply letter, said that the Southern was unable to accept some of the A.C.L. statements and that it has a very lively interest in the traffic of Florida originating on the East Coast. It intends, he said, "to maintain a claim to a legitimate share of that traffic in every lawful way and to resist any attempt to shut it out of Florida and thus to deprive that state of the benefits of its competitive service." The Southern, he said, "has not made any claims on any one for any more railroads than it now has; being content, as it is now advised, to maintain its rights to those railroads on which it has for a generation devoted its energies," and, "because it does not seek monopoly, but only a right to a free competition in service, it has not seemed to the Southern that it is necessary to change the status of the Florida East Coast, either in the public interest or in order to secure and improve the relations which the Florida East Coast now has."

GEORGIA & FLORIDA.—*Abandonment.*—The receivers have applied to the Interstate Commerce Commission for authority to abandon branch lines from Miller to Garfield, Ga., 14.1 miles, and from Graymont to Pendleton, Ga., 22.5 miles.

GULF, BEAUMONT & GREAT NORTHERN.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $1,132,000 of general mortgage bonds to the Atchison, Topeka & Santa Fe, to refund a like amount of first mortgage 5 per cent bonds due July 1.

KANSAS CITY SOUTHERN.—*Commission Asked to Re-Open Anti-Trust Case.*—Walter E. Meyer, representing minority stockholders of the St. Louis Southwestern, has filed a petition asking the Interstate Commerce Commission to vacate its order which approved the divestment by the Kansas City Southern of its stock in the St. Louis Southwestern and the Missouri-Kansas-Texas and which discontinued its Clayton act proceeding against the K. C. S., and to proceed with hearings under its complaint against the company.

MINERAL RANGE.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and the Hancock & Calument to abandon a line extending from Lake Junction, Mich., to Osceola, 6 miles.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a portion of its line beginning 2 miles west of East Lake, Minn., and extending westward 27.5 miles, and that part of its Iron Mountain branch extending from a connection with the line described above, 4.9 miles.

NEW YORK CENTRAL.—*Control of Owasco River.*—The Interstate Commerce Commission has authorized this company to acquire control of the Owasco River by purchase of its capital stock from the International Harvester Company for $75,000.

NEW YORK, CHICAGO & ST. LOUIS.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $12,000,000 of refunding mortgage 4½ per cent bonds, series C, to reimburse the treasury, to be sold to the Guaranty Trust Company of New York at 94½ and interest. The issue is being offered, if authorized by the Guaranty Company, Harris, Forbes & Co., Lee, Higginson & Co., and Dillon, Read & Co. at 97½ to yield 4⅝ per cent. The issue will mature in 1978.

ST. LOUIS-SAN FRANCISCO.—*Equipment Trust.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of $8,085,000 of its 4½ per cent equipment trust certificates, series DD, maturing in installments from 1931 to 1945. The issue is authorized for sale to the highest bidder, the First National Old Colony Corp., and four associates, at 98.034, which will make the average annual cost to the railroad approximately 4.813 per cent.

SOUTHERN.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell $3,106,000 of first consolidated mortgage 5 per cent bonds, payable July 1, 1994, for the purpose of providing for the redemption of a like amount of first consolidated mortgage bonds of the East Tennessee, Virginia & Georgia maturing July 1.

VIRGINIAN.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $5,795,500 of first mortgage 4½ per cent. bonds, in lieu of an issue of 5 per cent. bonds which is to be canceled, and to sell $5,000,000 of the bonds to the National City Company and Lee, Higginson & Co., at 94½ and interest.

WABASH.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $15,000,000 of refunding and general mortgage 5 per cent bonds, to be sold to Kuhn, Loeb & Co., at 98. The proceeds are to be used to provide for capital expenditures in 1929 and 1930 and to refund or retire $1,227,000 of indebtedness of the Ann Arbor. The latter also has asked authority for an issue of $3,670,000 of improvement and extension mortgage bonds.

Dividends Declared

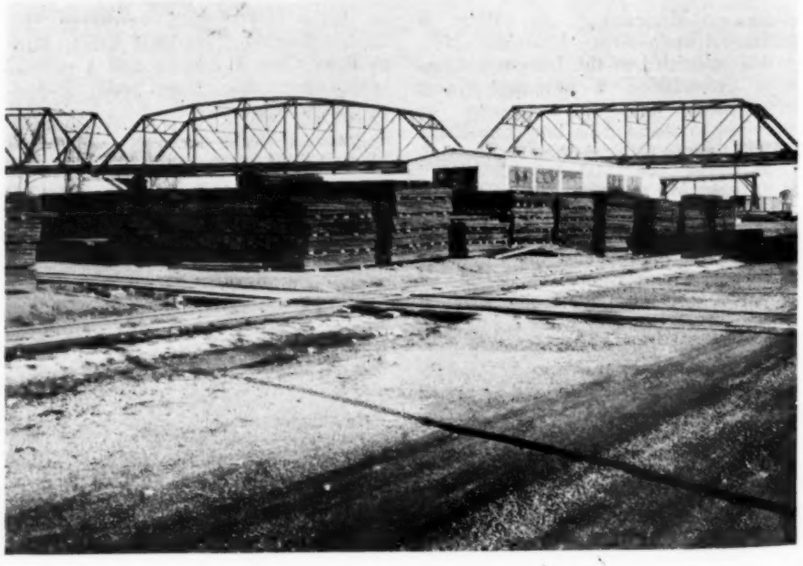
Kansas City Southern.—Common, 1¼ per cent, quarterly, payable May 1 to holders of record March 31; Preferred, 1 per cent, quarterly, payable April 15 to holders of record March 31.

Minneapolis, St. Paul & Sault Ste. Marie—Leased Line.—2 per cent, payable April 1 to holders of record March 20.

Average Prices of Stocks and of Bonds

	Mar. 25	Last week	Last year
Average price of 20 representative railway stocks.	136.78	135.50	127.30
Average price of 20 representative railway bonds..	94.78	94.43	90.73

* * * *



St. Louis-San Francisco Viaduct and Car Wheel Shop at Yale, Tenn.—616,000 Ft. of Creosoted Decking in Foreground Stored Ready for Application to Open-Top Cars

Railway Officers

Executive

William A. Webb, former vice-president of the Colorado & Southern, the Missouri-Kansas-Texas and the St. Louis Southwestern and president of the Cambria & Indiana, has resigned as chief commissioner of the State Railways of South Australia, with headquarters at Adelaide, South Australia, effective May 16, and will return to the United States at that time. Mr. Webb has been chief commissioner of the South Australian State railways since September, 1922.

Frank Lyon Glover, assistant to the freight traffic manager of the Atlantic Coast Line, at Wilmington, N. C., has been appointed assistant to the vice-president, with the same headquarters. Mr. Glover was born on December 27, 1878, at Mobile, Ala. He was educated in the public schools of that city and Atlanta, Ga., and commenced his railway career on June 1, 1893, as a clerk with the Southern Railway & Steamship Association. He remained with that company until December, 1898, when he became a correspondence clerk in the general freight office of the Mobile & Ohio, at St. Louis, Mo. From July 1, 1901, to May 1, 1907, he served as assistant to the chief rate clerk of the Southeastern Freight Association, at Atlanta, Ga., and on the latter date he accepted the position of chief tariff clerk in the general freight office of the Southern. From December 15, 1910, until the present time, with the exception of the periods between July 31, 1914 and March 1, 1915, and May 1, 1918, and February 29, 1920, when he served as assistant secretary to the general manager of the Association of the Southeast, and assistant to the chairman of the Southern Freight Traffic Committee, United States Railroad administration, respectively, he was in the continuous service of the Atlantic Coast Line, serving successively as assistant chief clerk, chief clerk, commerce clerk, assistant to general freight agent, assistant general freight agent and assistant to freight traffic manager, the position he held at the time of his appointment as assistant to the vice-president.

J. B. Brantly, assistant general freight agent of the Atlantic Coast Line, at Wilmington, N. C., has been appointed assistant to the vice-president, with the same headquarters. Mr. Brantley was born on June 3, 1893, at Macon, Ga., and was educated in the local public schools. On December 9, 1911, he commenced his railway career as a stenographer in the freight traffic department of the Atlantic Coast Line, and has remained continuously in their service to the present date. On May 1, 1912, he became secretary to the fourth vice-president in charge of traffic, and from May 1, 1915, until August 31, 1920, while in the office of the assistant general freight agent, he served successively as stenographer, trace clerk, rate clerk, and chief clerk. On the latter date he was appointed commercial agent at Ocala, Fla., and from May 1, 1923, to February 28, 1926, he held a similar position at Wilmington, N. C. On March 1, 1926, he was appointed assistant general freight agent, which position he held until his recent appointment as assistant to the vice-president.

William S. Trowbridge, comptroller of of Boston & Maine, at Boston, Mass., has been appointed vice-president in charge of finance and accounting. Mr. Trowbridge was born on January 11, 1880, at Pawling, N. Y. He entered railroad service in June, 1895, with the New York Central & Hudson River (now the New York Central), as a clerk in the accounting offices. In 1907 he

William S. Trowbridge

was appointed general bookkeeper of that company, and in June, 1911, he entered the employ of the Boston & Albany to serve as assistant auditor at Boston, Mass. On June 1, 1915, he was promoted to auditor, and served in this capacity until October 1, 1918, when he was appointed comptroller of the Boston & Maine, which position he held until his recent appointment as vice-president.

Operating

J. A. O'Hearn has been appointed trainmaster of the Spokane division of the Spokane, Portland & Seattle, at Spokane, Wash.

B. L. Sperry, trainmaster on the Spokane, Portland & Seattle at Spokane, Wash., has been promoted to superintendent of car service and telegraph, with headquarters at Portland, Ore., succeeding **E. E. Lillie,** deceased.

J. G. Torian, assistant to the vice-president and general manager of the Southern Pacific lines in Texas & Louisiana, has been appointed assistant general manager of those lines, with headquarters as before at Houston, Texas, and the position of assistant to the vice-president and general manager has been abolished.

J. A. Rittenhouse, superintendent of the New York zone of the Pullman Company, with headquarters at New York, has been promoted to assistant general manager in charge of the San Francisco zone, with headquarters at San Francisco, Cal. **P. T. Ryan,** assistant general manager at Chicago, has been transferred to the New York zone. **B. H. Vroman,** superintendent of the Central zone, has been appointed assistant to the general manager in charge of service personnel, with headquarters as before at Chicago. **F. B. Kemp,** assistant superintendent of the Atlanta zone, has been promoted to superintendent of that zone, with headquarters as before at Atlanta, Ga., succeeding **W. M. Camp,** who has retired on pension.

Thomas Scott, who has been promoted to superintendent of the Victoria division of the Texas and Louisiana lines of the Southern Pacific, with headquarters at Victoria, Tex., has been connected with that railway for 14 years. He entered railway service in 1892 as a general foreman of construction on the Dallas-Sabine lines of the Southern Pacific in Texas, where he remained until 1894 when he became connected with construction forces of the Wisconsin Central (now part of the Minneapolis, St. Paul & Sault Ste. Marie). Later Mr. Scott entered Union Pacific service and in 1906 he was appointed roadmaster at Lincoln, Neb., then being transferred to Kearney, Neb. In 1911 he was advanced to assistant superintendent at Omaha, Neb., and in 1914 he became general roadmaster at Omaha. Mr. Scott was appointed assistant superintendent on the Beaumont-Galveston division of the Texas and Louisiana lines of the Southern Pacific at Houston, Tex., in 1918 and in 1920 he was transferred to the Dallas-Sabine district at Jacksonville, Tex. During 1926 and part of 1927 he supervised construction work on the Valley line south from Falfurrias, Tex., returning to the Beaumont division as assistant superintendent at Houston on May 1 of the latter year. On January 16, 1928, he was transferred to the Dallas division at Ennis, Tex., where he remained until his promotion to superintendent of the Victoria division on March 1.

Traffic

Everett H. Dallas, district passenger agent for the Atchison, Topeka & Santa Fe at St. Louis, Mo., has been promoted to general agent at the same point, succeeding **John C. Sartelle,** deceased.

A. C. White, freight traffic representative of the Central Vermont at Boston, Mass., has been promoted to general agent of the freight department at Detroit, Mich.

H. F. Halstead, commercial agent for the Kansas City Southern, at Milwaukee, Wis., has been promoted to general agent at Detroit, Mich., succeeding **E. J. Gleaser** who has been transferred to Kansas City, Mo., to succeed **C. P. Wilson,** resigned.

R. L. McKee, commercial agent for the Louisiana & Arkansas at Oklahoma City, Okla., has been promoted to general agent at St. Louis, Mo. **W. H. Andrews** has been appointed Pacific Coast agent, with headquarters at Los Angeles, Cal. **I. W. Dudley** has been appointed general agent at Seattle, Wash.

Mechanical

W. D. Hartley, master mechanic of the New Mexico division of the Atchison, Topeka & Santa Fe at Raton, N. M., has been promoted to mechanical superintendent of the Northern district of the Western lines, with headquarters at La Junta, Colo., effective April 1. Mr. Hartley succeeds **J. R. Sexton,** who will retire from active duty under the railroad's pension plan on that date, after 18 years as mechanical superintendent at La Junta.

H. E. Felter, assistant master mechanic of the Hannibal division of the Chicago, Burlington & Quincy at Brookfield, Mo., has been promoted to master mechanic of the Casper division, with headquarters at Casper, Wyo., succeeding **C. E. Melker, who has been transferred to the Hannibal division at** Hannibal, Mo. Mr. Melker replaces **H. C. Gugler,** who has been appointed superintendent of shops at West Burlington, Iowa. **Don Nott,** assistant master mechanic at Galesburg, Ill., has been transferred to the Hannibal division to succeed Mr. Felter.

Purchases and Stores

William E. Rawson, who has been promoted to assistant general storekeeper of the Texas and Louisiana lines of the Southern Pacific, with headquarters at Houston, Tex., has been connected with that railway for 16 years. He was born at Millikens Bend, La., on July 2, 1880, and attended public schools at Havana, Ill., and the Memphis (Tenn.) and Chattanooga medical colleges. At the age of 18 he became bookkeeper, serving in that capacity for the manager of various mercantile establishments until 1907 when he entered railway service as chief clerk in the mechanical department of the Kansas City, Mexico & Orient (now part of the Atchison, Topeka & Santa Fe) at Wichita, Kan. In June, 1911, he was promoted to general storekeeper of the Orient, then resigning in 1913 to engage in business as agent for the Farmers' & Bankers' Life Insurance Company at Wichita. Mr. Rawson returned to railway service in July, 1913, as general storekeeper of the San Antonio & Aransas Pass (now part of the Southern Pacific) at Yoakum, Tex. During the World War he acted as general storekeeper for the United States Shipping Board at the Beaumont (Tex.), Lone Star (Tex.) and Mobile (Ala.) ship yards from May, 1918, to March, 1919. From the latter date until August, 1920, he served as general storekeeper of the S. A. & A. P., then being appointed district storekeeper on the Texas and Louisiana lines of the Southern Pacific in August, 1920. Mr. Rawson's promotion to assistant general storekeeper of those lines became effective on March 15.

William E. Rawson

Obituary

O. F. Spindler, general agent for the Chicago Great Western at San Francisco, Cal., died in that city on March 6 at the age of 70 years.

Lewis E. Gettle, chairman of the Railroad Commission of Wisconsin, died on March 18. Mr. Gettle had been a member of the Wisconsin commission since 1921 and had served as its chairman since 1923. He was president of the National Association of Railroad and Public Utility Commissioners in 1928-29.

S. A. Stockard, director of transportation of the Atlantic Coast Line, with headquarters at Wilmington, N. C., died on March 22. Mr. Stockard was born on December 21, 1883, in North Carolina, and was educated at Fredericksburg College. He commenced his railway career in April, 1905, with the Atlantic Coast Line, and has been in its service to date, serving successively as car accountant, superintendent of car service, assistant general superintendent of transportation, general superintendent of transportation and director of transportation, the position he held until his death.

Edward E. Lillie, superintendent of car service and telegraph of the Spokane, Portland & Seattle, with headquarters at Portland, Ore., died in that city on March 14. Mr. Lillie was born at Galt, Ont., on October 26, 1869, and entered railway service at the age of 14 years as a telegraph operator on the Canadian Pacific at Winnipeg, Man. From 1888 to 1907 he served successively on the Great Northern as a telegraph operator, train dispatcher, chief dispatcher and assistant superintendent, then entering the service of the Spokane, Portland & Seattle as superintendent of car service and telegraph, a position held until his death.

Charles Theodore Airey, vice-president of the Central of Georgia, with headquarters at Savannah, Ga., died on March 14, of heart trouble. He will be succeeded on the board of directors by **J. L. Beven,** who is vice-president of the Illinois Central System. Mr. Airey was born on August 17, 1866, at Perryville, Ala. He received his education in private schools and began his railroad career in 1882 in Selma, Ala., as a clerk to the master mechanic of the East Tennessee, Virginia & Georgia (now part of the Southern). He held various clerical positions in the shops and local agencies of this road, until 1894, when he entered the service of the Southern as agent at Macon, Ga. For five years he served as general agent for the Mobile & Ohio in Atlanta, Ga., and for a time held a similar position with the New York & Texas Steamship Company there. In August, 1904, he became assistant general freight agent of the Central of Georgia, at Savannah, and in April, 1907, he was promoted to freight traffic manager, in which capacity he served until January 1, 1918. When the government took over the operation of the railroads during the World War, he became chairman of the Southern Export Committee of the U.S.R.A., being stationed at Washington, D. C., New Orleans, La., and Atlanta, Ga. He was promoted to vice-president and traffic manager of the Central of Georgia on October 1, 1919, and on September 1, 1928, he became vice-president, the position he held until his death.

Charles Theodore Airey